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Railway Age

AND RAILWAY REVIEW

FIRST HALF OF 1928—No. 14

APRIL 7, 1928

SEVENTY-THIRD YEAR

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350-55

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GENERAL ELECTRIC
SCHENECTADY, N. Y.



Santa Fe "Oil Flyer" at Bartlesville, Okla.

Railway Age

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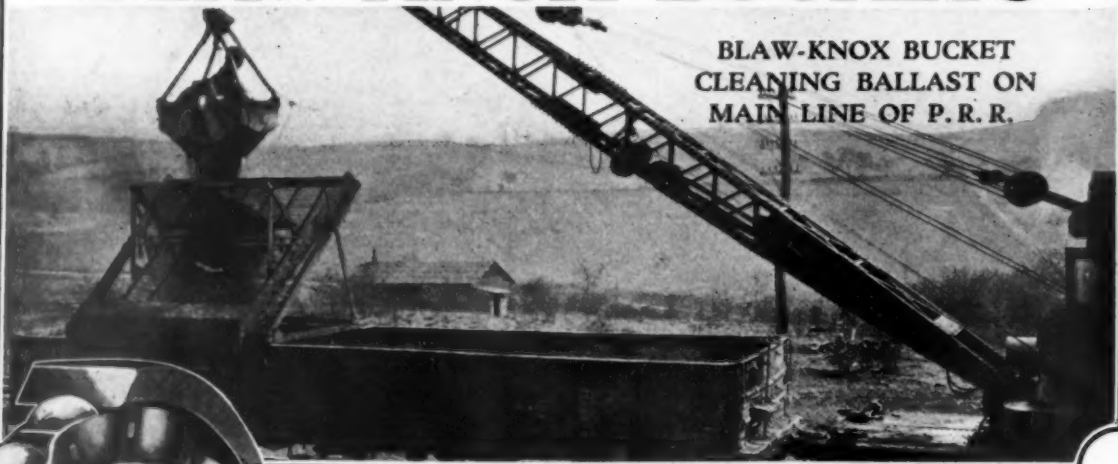
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Railway Age

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The Extension of Maintracking

THERE have been published in the *Railway Age* from time to time, articles describing the installation of the "maintracking" principle on various railways. The Missouri Pacific, in its maintracking plan, which is described in this issue, has applied the idea to points beyond its own rails. Trains are operated through, without break-up at intermediate yards, from St. Louis to New Orleans, La., Houston, Tex., El Paso and Brownsville, among other points, in connection with the Texas & Pacific, the International-Great Northern and the Gulf Coast Lines, which, although affiliated with the Missouri Pacific, have entirely separate operating identities. Similarly, maintrackers are operated west from St. Louis to San Francisco in connection with the Denver and Rio Grande Western and the Western Pacific. This extension of the maintracking principle is important in that it affords some idea of the potentialities of the principle. It brings to mind the thought: Why not operate maintrackers between any points where there is a sufficient quantity of traffic moving? The idea may seem far-fetched at present, but it is worth considering.

Protecting Electrical Machinery

WHEN ENGINEMEN trained on steam locomotives are required to operate electric motive power, it is necessary to teach them the fundamental difference between the two types, namely, that unlike the steam locomotive, the electric will not stall when required to pull more than its rated load, but will go on taking more up to a point where insulation on the motor may be damaged by heat. Usually a red line is placed on the ammeter located at the engineman's position to show when maximum safe current is reached. This helps to minimize trouble from this source, but does not always eliminate it. The Rock Island has made use of a special type voltmeter for several years on its gas-electric rail cars. By running the engine and generator at high speed without load it is possible to cause the voltage to rise to a dangerously high value. The voltmeters allow the enginemen to see the value of generator voltage at all times and have served to eliminate trouble from this source. Conditions of this kind do not exist on most electric locomotives, but the practice illustrates one means of eliminating electrical troubles. Two electric locomotives recently placed in service on the Sacramento Northern have thermometers placed in the motor field windings which indicate motor temperature to the engineman at all times and which will also shut off the power when the safe operating temperature is reached; the breaking of a seal then permits the

engineman to proceed if he wishes. Not all operators will approve of this provision for stopping a train, but if desired the thermometers could be made to record maximum temperature. It would appear from these examples that there are numerous effective means for protecting electrical power machinery of all kinds which could be used to a greater extent than they are at present.

Electrical Refrigeration for Dining Cars

THAT A dining car can be completely refrigerated successfully with the aid of modern electrically-operated equipment is shown in an article published elsewhere in this issue describing the new "iceless" refrigeration on a Chicago, Milwaukee, St. Paul & Pacific dining car. It is believed that this is the first diner to be completely equipped with electrical refrigeration facilities. The car has been running about eight hours a day for the past five months. A short daily run imposes a greater demand on the operating battery than a longer run since the battery is charged only while the car is running. Yet, in spite of the relatively short run, the storage battery has been maintained in a fully-charged condition at all times. As a result of this experiment, the superintendent of dining cars is convinced that this equipment is thoroughly practicable for transcontinental as well as local service. Since it is the almost universal experience that dining car service is operated at a loss, it is of interest that, entirely aside from a considerable saving in food, these new facilities are effecting a saving in the cost of ice and its handling of about \$750 a year, after deducting all maintenance and operating charges against the new equipment, in comparison with an installation cost of \$1,800 for the new equipment.

Competition

PROGRESSIVE railway managements are using the incentive of competition more generally and more successfully than ever before to effect desired goals of achievement in accident reduction, better fuel performance, reduced engine failures, fewer hot box delays, etc. In some cases, comparisons between different roads and between different divisions, terminals, or shops on the same road are practicable and effective in stimulating renewed interest and improved performance. Usually, however, varying physical characteristics, which cannot be entirely allowed for, render direct comparisons misleading, and not infrequently a better way is to base the comparison or ratings of individual divisions, in regard to unit locomotive fuel consumption, for example, on the percentage of improvement over performances during the same period of the preceding year. This has the

effect of giving all divisions an equal chance to win favorable mention. The objection may be raised that without a direct comparison of actual performance figures, certain divisions, terminals, or shops may become somewhat complacent as regards physical handicaps and not try to overcome them. If, however, an intensive effort is made to improve the performance each year it will not be long before these handicaps are receiving careful scrutiny in an effort to discover how they can be overcome.

An Air Transport "Boom"

SINCE THE FIRST of the year literally scores of new air transport lines have been projected. Some of these have or hope to secure contracts with the government for the transportation of mail. A much larger number propose the transportation of passengers exclusively. These lines are not concentrated in any one part of the country, but are distributed over the entire map. It is thus apparent that the anticipated boom period in air transport development is arriving. Some of these projected lines will probably never actually begin operation. Local enthusiasm has led to the creation of a number of companies which may never get beyond the organization stage. Some lines are probably being promoted for stock-selling purposes only, and while they may actually start flying a few planes, it is doubtful if they will last long. A sufficient number of the projected lines, which are adequately financed and capably managed, have been organized, however, to presage some rather striking developments this summer. From a railway standpoint the important question at this time is whether the spread of air transportation in the United States is to duplicate the phenomenally rapid spread of motor coach and motor truck transportation and, if so, how it will affect the railways.

Meritorious Inventions in the Railway Field

THOSE who knew the late George R. Henderson recognize how deeply he was interested in the development of the locomotive and also in analyzing the various factors in railway operation, in order to place it upon a more businesslike and efficient basis. Several years ago Mrs. Henderson presented a fund to be administered by the Franklin Institute and to be used in awarding the George R. Henderson gold medal for "meritorious inventions or discoveries in the field of railway engineering." Apparently the fact that such a provision was made has not received much publicity, for it is a matter of record that no awards have thus far been made. Few fields of endeavor have been so marked by important inventions and discoveries as has been characteristic of the railway field throughout its history. An honor roll of outstanding inventors in the engineering field would include not a few names associated with the transportation industry and particularly with the railways, if for no other reason than that they are so indispensable to progress and have played such a large part in our national life. Apparently the limited knowledge of the Henderson medal has prevented the Committee on Science and the Arts of the Franklin Institute from receiving suggestions as to those inventions or discoveries in the railway field which it is the pur-

pose to recognize. There is little doubt but that the members of this committee would appreciate such information as would enable them to locate and honor men of outstanding accomplishments in the wide variety of engineering applications involved in railway operations.

The Railways as Policemen

DOES the remarkable reduction which has occurred in losses of freight due to robbery throw some light on the comparative efficiency of our railways and our governments? Nobody claims, we believe, that our governments have recently reduced the amount of crime in the country, although the prevention of crime is one of their main functions; but the railways can point with pride to what railway police forces have accomplished in reducing losses of freight in transit resulting from robberies. Under government operation of the railways loss and damage to freight from all causes, including robberies increased greatly and reached their maximum in 1920, in which year losses due to robberies from freight cars and other railroad property amounted to \$12,726,947. Losses due to robberies have since been reduced until the corresponding figure for 1927 was only \$1,151,136. In other words, in 1927 they were less than 9 per cent of what they were in 1920. The reduction of robbery of freight in transit is attributed to increased efficiency of the personnel of the railway police forces; to closer cooperation between the police departments of different railways; to the placing of train riders on trains carrying especially valuable shipments; to improved methods of patrolling yards and inspecting trains within yards and at water tanks as well as to closer cooperation between the police of the railways and those of cities, counties and states. Our governments all take a hand in regulating the railways; but it is extremely doubtful if any division of government can show such a record of efficiency in reducing crime of any kind as the railways can show in the reduction of robberies of freight. Perhaps our governments might profit, in dealing with the problems of crime, by studying the methods of the railways, which they consider need so much supervision and correction by them.

An Offer to Pay More for Improved Service

BUSINESS and civic organizations in the Northern New Jersey suburban zone served by the Delaware, Lackawanna & Western, have presented petitions to President Davis of the railroad asking for electrification. As an inducement they suggest that perhaps an increase in commutation rates of about 15 per cent might be made to assist in covering the charges on the additional capital outlay. The railroad is studying the proposal and has not yet announced its attitude. Whatever its views may be, however, it is at least encouraging to witness now and then a public acknowledgment that a railroad ought to have additional compensation for improved service. All too frequently patrons are inclined to ask endless expenditures without considering how or where the railroad can justify them economically. The plain fact is that in a suburban zone when a railroad eliminates grade crossings, provides beautiful stations and

station grounds, purchases the most modern equipment and electrifies to give more frequent and comfortable service, it is not the railroad which gains most greatly thereby. The principal favored ones are the owners of real estate and business concerns who find their earnings enhanced by the increased population which follows such improvements. It is the real estate owners and business concerns, therefore, which in a Utopian state would have to provide most of the funds for the improvements. From a practical standpoint, however, it may be difficult to reach such classes, whereas contributions can easily be levied on commuters, especially if they are not unwilling. However that may be, it is a question in the present instance between the D. L. & W. commuters and the civic organizations which have suggested an increase in rates. The outstanding fact, from a railroad standpoint, is that a large group of such organizations have publicly recognized an obligation to the railroad in requesting important capital expenditures. Their example might well be called to the attention of railroad patrons elsewhere whose attitude is not always so reasonable.

"Air Mindedness" and Passenger Traffic

THE possibility of profit from passengers in air transportation is a subject that is holding the attention of a number of fore-sighted railroad officers. This possibility is dependent not only on further development of air craft, but upon the rapidity with which the potential passengers become "air-minded" enough to accept air craft as a natural means of transportation.

The best test of how rapidly persons in this country are reaching that state of mind would be in determining the number that have flown and are flying as passengers. While it is impossible to report the complete total, because of the private flights of which there is no record it is of interest to note that in 1926 there were reported to the Department of Commerce as having been carried on regular, scheduled flights and special flights afforded by various aerial services 388,097 passengers. The Department of Commerce has not issued figures as yet for 1927, but the Aeronautical Chamber of Commerce reports that in scheduled and special operations there were 476,724 passengers carried in 1927, and estimates that about one-third more added to this figure would include private flights not reported.

The dozen air lines now in operation offering passenger service over approximately 20,000 miles of scheduled routes have apparently been doing much to further "air-mindedness", and the continual establishment of new routes and services will further serve that purpose. As a sidelight bearing on the effort of those bent on developing aviation and "air-mindedness," the report of a flying organization operating in the southeast under the auspices of the American Society for the Promotion of Aviation, is in point. The flying group carried 17,450 passengers in 12 southeastern cities between December 7 and February 20.

Certainly this attitude of accepting air travel as a comparatively casual matter is essential to the development of any body of potential air passengers, and flying organizations operating special services and established lines have been doing all they can to accustom the public to air travel. However, numerous as are those who

have traveled by air, and granting that each passenger who has flown once will travel by air again, still the total is one to which the railroad officer, viewing the possibilities of air passenger traffic with a speculative eye, can only look with the knowledge that it is a beginning. A good beginning possibly, but one that must experience further development before the "air minded" body is large enough to be considered, along with such matters as the further development of air craft in speed, size and safety, by the railroad officer contemplating the advisability of carrying passengers by air as an auxiliary service to the regular mode of passenger transportation.

Dangers of Competition in the Building Field

IN COMPARING notes following the award of a contract for a railway building costing approximately \$100,000 recently, two of the unsuccessful bidders, both experienced railway contractors, found that both had submitted bids based on a desire to get the work in order to keep certain of their gangs busy. Their bids, therefore, represented their estimates of the actual cost of the work with relatively little provision for overhead and profit. Yet, they were far from the lowest among 22 bidders, most of whom were local building contractors.

In another instance recently, where a railway was about to undertake an improvement at an important point on its line, the engineer in charge received from the freight agent at that point a list of local contractors with the request that the work be let to them as an aid to him in securing from these contractors the routing of materials used on other projects. In still another instance, the secretary of a chamber of commerce requested and secured from the railroad plans and specifications for a building to be constructed locally, which plans were distributed among a dozen or more of the chamber of commerce's members for use in bidding, with the result that nearly 30 bids were received, mainly from companies that had never done railway work.

These incidents reflect the increasing competition between contractors in the building industry as a result of the slowing down of general building construction in many localities, with the result that contractors not previously interested in railway work, with its exacting requirements, are now turning to it in an effort to keep their organizations intact until work again picks up in the general field.

In so far as this condition leads to more active solicitation of work, it is not without advantage to the railways. Neither are the claims of local industries to be ignored. However, this condition may lead to danger. To the extent that the local contractor is willing and able to meet railway requirements, he is entitled to consideration, but to award contracts on the basis of the traffic controlled or to a man who wants work merely to tide him over until he can return to another field, places a heavy responsibility on the engineering department which may and frequently does lead to trouble. The experience of not a few roads with such awards shows that many of the low bids are made without a full knowledge of the exacting character of railway requirements, the attitude of the roads towards extras, etc., and that a large proportion of these awards result in trouble, default and in the end in delay and

added cost to the road. In one such check made recently it was shown that of four important contracts awarded by one road to local bidders three were finally taken over and finished by the bonding companies after the contractors had defaulted.

We hold no brief for the contractor who specializes in railway work and no cudgel for the local general contractor. The present situation affords an opportunity for a railway to secure the most active competition and the lowest possible price for its work. But that road profits most which looks not merely at the face of the bid, but to the final cost of the job, all conditions considered.

Railroad Dividend Policy

TELL the average man who gets his information from the newspapers that the railways are not highly prosperous and he will probably answer, "Why, then, are railway stocks selling at such high prices?" Tell the same thing to some man who gets his information from the statistics of the Interstate Commerce Commission, without carefully comparing and analyzing them, and he is likely to answer, "But the average net income per share upon the stock of the railways in 1926 was the largest in history". His statement will be true, and yet it will not show that the railways were more prosperous in 1926 than in any earlier year. But real prosperity always has been dangerous to the railways, and the appearance of prosperity is hardly less dangerous to them. If they follow a policy that tends to make them seem more prosperous than they are they help to encourage the development of a public sentiment and the application of a policy of regulation which will tend to keep them from prospering.

The railways enjoyed greater prosperity in 1910 and 1916, for example, than in 1926. The average return earned by them on their investment in road and equipment in 1910 was 5.53 per cent; in 1916, 5.93 per cent, and in 1926 only 5.15 per cent. Their average net income per share of stock, as reported by the Interstate Commerce Commission, was, however, in 1910, \$7.28; in 1916, \$8.40, and in 1926, \$9.44. The average rates of dividend declared by them on all stock in these years, according to the statistics of the commission, were: in 1910, \$5.00; in 1916, \$4.19, and in 1926, \$5.06. The present comparatively high prices of all stocks, including those of railways, plainly are mainly due to general financial conditions and stock market speculation. Undoubtedly, however, the advances that have occurred within recent years in the prices of railway stocks are largely due to the comparatively large average net income per share being reported by many railways, to the actual advances in dividends that have occurred, and to the other advances that are assumed to be in prospect.

Why has the average net income per share of the railways been larger within recent years than it was in earlier years although the percentages of return earned within recent years upon their property investment have been smaller? The *Railway Age* reviewed the developments which have led to these results in an editorial entitled "The Stockholders' Equity in the Railways", which was published in its issue for January 14, 1928, page 127. Since then the complete statistics of railways of the Interstate Commerce Commission for 1926 have been issued, and it is now possible to substitute the correct statistics for that year for estimates then made.

The commission gives two different sets of statistics for railway capitalization, interest payments, net income and dividends. One set includes duplications due to the ownership of bonds and stocks by railway companies themselves. The other set excludes these duplications and gives capitalization, interest, net income and dividends for the railways considered as a single system. Both these sets of figures show that prior to 1910 capitalization increased as fast as or faster than investment, while since 1910 investment has increased much more than capitalization. Taking the figures for the railways considered as a single system and thereby considering only the funded debt and capital stock actually outstanding in the hands of the public, and the net interest and dividends earned and paid upon them—we find that in 1910 the investment reported was \$14,558,000,000, the funded debt \$8,817,000,000, and the difference between them, which represented the stockholders' equity, \$5,741,000,000. The amount of stock actually outstanding in the hands of the public was slightly smaller than this latter figure, and the stockholders' average investment or equity per share was \$103.28.

From 1910 to 1926 the investment increased about \$8,491,000,000, and the net capitalization only \$3,859,000,000. The total investment reported in 1926 was \$23,049,000,000, and the amount of funded debt \$11,404,000,000, leaving an investment or equity represented by the stock of \$11,645,000,000. The par value of the stock outstanding was only \$6,830,500,000, indicating that the average investment or equity per share had increased to \$170.50.

The increase in the investment between 1910 and 1916 exceeded the increase in net capitalization by about \$4,600,000,000. A somewhat different result is reached if comparison be made between the increase in the investment and the increase in gross capitalization, including duplications due to inter-corporate ownership of securities. Even the increase in the gross capitalization, including these duplications, however, was over \$3,000,000,000 less than the increase in investment. Where was obtained the money with which the increase in the investment not represented by an increase in capitalization was made? It must have come from earnings which belonged to the stockholders and could have been paid out to them in dividends.

After the Interstate Commerce Commission denied a general advance in rates in 1911 dividends, which for some years previously had been increasing, were reduced and never again were as large until 1926 as they were in 1911. For years the net income of many railways was usually not sufficient to pay respectable dividends, and therefore they paid none at all and invested all their net income in the properties. Other railways paid modest dividends because they feared if they advanced them they could not maintain them on the higher level, and invested a large part of their net income. The result has been that for years the railways have been building up their properties largely out of earnings and paying modest dividends. Within recent years the dividends paid by the railways as a whole have been only about one-half of their net income.

Meantime conditions have changed. Owing to the abundance of capital seeking investment and consequent low interest rates, and also to the increase in the net income per share of most railways and the hope of larger dividends this has inspired, many railways apparently can now finance much more largely than in many years by the sale of stock. Should they not try to do so and try to pay high enough dividends to make the effort successful? The average dividend paid in

1910 yielded a return of more than 5 per cent on the investment per share then represented by railway stocks. The average dividend paid in 1926 yielded a return of only about 3 per cent on the investment of \$170 a share represented by stock in that year. Are not the stockholders of many railways entitled to larger rewards for the voluntary or compulsory sacrifices of return upon their investment that they have made for so many years?

There are other considerations that seem entitled to weight besides justice to the stockholders. The railways have invested earnings until, with a return on their total investment of only 5.15 per cent in 1926, the statistics of the Interstate Commerce Commission report a net income per share of \$9.44. Continued increase in the net income per share invites unfair attacks upon their rates and earnings. Besides, the railways need more stockholders. They probably have less stock outstanding in the hands of the public in proportion to the investment they have to protect than any other industry in the country. The more stockholders they get the more persons there will be who have a selfish interest in helping to protect them from attacks. The managements of other public utilities have found that "customer-ownership" and "employee-ownership" of stock is highly advantageous to them. The railways can not hope to get more stockholders without issuing more stock. The average holder of railway stock owns about 100 shares. On this basis, if the railways had stock outstanding to represent the increase in the stockholders' equity in the properties that has occurred since 1910, they would have some 400,000 more stockholders scattered over the country than they have.

No doubt it is desirable that large amounts of earnings should be invested in railway properties, and especially in unproductive improvements; but it does seem that a strong argument can be made for those railroads that can do so to finance less largely with earnings and more largely with stock in future.

Time-Tables as an Advertising Medium

DURING recent years many railroads have spent large sums of money for advertisements in periodicals and newspapers in an effort to bring to the attention of the public the advantages of the services of their respective lines. But there are other mediums which are also potentially important in an advertising campaign.

One of the most obvious of these is the time-table, and most roads are using it to a greater or less degree, to tell a story beyond simply the arrival and departure times of trains. If there is printed in the time-table general information pertaining to the character of the services offered by the railroad or the industrial opportunities available in the territory which the railroad serves, it is sure to catch the attention of those using it. One railroad in the east has fully appreciated the value of its time-tables as an advertising medium. Scattered throughout its system schedule are box inserts in which is printed pertinent information about its service to the territory in which it operates. The first inside page contains a column headed "How to read this time-table," with a sub-title reading "It's simple once you get the idea."

After reading the information given in this column, a task sometimes tedious is made comparatively easy.

Pictures of forest tree types which are to be found along the line together with information about the trees and what their wood is used for, are shown on one page of the schedule. Four box inserts contain information on the following subjects: How the industrial bureau of the road is helping to build up the agricultural industry and the opportunities offered to new business enterprises in the territory which the railroad serves; how the road has increased the efficiency of its freight service, thus helping jobbers and merchants to operate on a low-inventory basis; how the shippers can hasten freight deliveries by heavier loading of cars; how vacationists can secure booklets descriptive of the territory served by the road and how to eliminate forest fires. Since time-tables must be printed, why not take full advantage of them as an advertising medium?

Signaling Double Track To Increase Capacity

THE type of signaling that will best increase the capacity of a multiple track line and eliminate train stops and delays, depends primarily on the kind of traffic handled and the extent to which the movements are preponderantly in one direction during certain periods of the day. Two distinct systems of signaling are used to meet different requirements.

A few years ago the Illinois Central equipped a section of 20 miles of two-track road with a complete system of signals and interlocking so arranged that train movements are directed by signal and indication without written train orders and trains are operated in either direction on either track. By means of these signals it is possible to run a fast train around a slower one on an idle section of the left-hand track, thereby keeping all trains moving, rather than placing the slow train in a siding with resulting train stops and delays. Interlocking plants with No. 18 facing point crossovers are located at five-mile intervals to facilitate run-around movements. Such a system is admirably fitted to the requirements of the Illinois Central in a section where fleets of fast passenger trains must be moved through and around dispatch and dead freight trains, and yet all trains must be kept moving. The Delaware, Lackawanna & Western likewise uses either-direction operation on one or more tracks of two-track, three-track and even four-track sections wherever such methods are required to secure track capacity or facilitate movements.

On the other hand some of the eastern roads operate passenger and fast freight trains so close together on each track that no left-hand track is idle long enough to permit a run-around move. An example of such operation is afforded on certain sections of the New York, New Haven & Hartford. Under such conditions it is evident that either-direction signaling on both tracks is not practicable.

The solution for securing maximum track capacity in such circumstances is to provide signaling to permit the minimum spacing between following trains and afford signal indications to govern the speed in accordance with the spacing, as for example on the Hoboken, N. J., terminal section of the Delaware, Lackawanna & Western, where short blocks are installed with four indications, "clear," "approach-restricting," "approach," and "stop."



Where Many of the Maintrackers Originate—The Yard at Dupu, Ill.

Maintracking Solves Terminal Congestion

Missouri Pacific expedites freight traffic materially by pre-classification according to system plan

IN 1924, the operating officers of the Missouri Pacific were faced with an acute problem in the way of congested terminals and over-taxed facilities in general. Traffic over the railway had shown a heavy increase, with the outlook that this increase would continue. In addition, there was the compelling demand on the part of shippers for improved service in the form of shorter train schedules and quicker deliveries. The congestion and delays that would have occurred in yards and terminals in 1926 when the gross ton miles handled on the system increased to over twenty-seven and one-half billions as compared with less than sixteen billions in 1922, if some such method as this had not been in use, are evident.

In 1924, the Missouri Pacific had in effect a system of "red ball" and "green ball" symboling of long distance and preference commodity freight. An effort was made to keep such freight moving in the then scheduled "red ball" trains, based upon the "tonnage available" method of dispatching trains. The two elements of heavy traffic and lack of facilities would not, however, be reconciled. Under the circumstances, it was decided to make a comprehensive study of the physical possibilities of the properties in general and of yard and terminal facilities in particular, with a view of determining what was necessary to meet the increased demand.

The Results of the Study

This study disclosed that in order to meet the conditions, it would be necessary either to incur large expenditures for increased terminal facilities (and in some cases even large expenditures would not provide adequate facilities because the necessary property for expansion was not available), or work out some system which would make it possible to handle the increasing volume of traffic originating on and coming to the line in such a way as to relieve yards and terminals of the existing congestion.

This study embraced not only the facilities available at various yards and terminals and the volume of traffic handled through such points in all directions, but also the time of receipt of business from and delivery to various connections at such points. As a result of this study, it was determined to inaugurate a system of "maintrackers," or prior classification of freight trains, operated on regular published schedules between the primary terminals, the departure and arrival times at such terminals being based on the time of connecting trains of other roads, the interval required for icing perishable commodities, the time required for changing engines and crews and various other details. In scheduling such freight trains, the first consideration was to meet the conditions and provide time of delivery demanded by the shippers and receivers and agreed to by other railroads.

As this study progressed, several difficult problems were encountered, chief among which was the old method of dispatching trains, built up with little regard for classification, an unusually large amount of branch line mileage, and at some points, inadequate facilities. However, with the co-operation of the employees interested, solutions were worked out whereby most of these problems were overcome with relatively negligible expenditures in the way of additional terminal facilities, by a system of "maintracking" whereby all ordinary as well as "red ball" and "green ball" freight is moved in scheduled trains grouped by destinations.

The Benefits Derived

On October 1, 1925, therefore, the Missouri Pacific installed a system freight classification plan, which has resulted in greatly increased operating efficiency. One of the features of this plan is that it is not confined to the Missouri Pacific proper, but extends over a number of subsidiary and connecting lines, including the Gulf Coast Lines, the International-Great Northern, the

Texas & Pacific, the Denver & Rio Grande Western and the Western Pacific.

The benefits to be derived from the successful operation of "maintrackers" or the prior classification of freight trains, are so numerous and affect so many different factors of train and terminal operation, that it is difficult to attempt to allocate such benefits to the individual factors of railroad operation benefited. However, under the system operated on the Missouri Pacific Lines it has been possible to eliminate the breaking up of through scheduled trains, thereby reducing switch engine hours at intermediate terminals and, in some instances, eliminating such terminals entirely. It has also been possible to make a decided extension in the mileage of both engines and crews on through freight runs. The mileage now being made on some of these freight engine runs is as follows:

St. Louis-Kansas City.....	277	Wichita-Osawatomie	164
St. Louis-Ft. Scott.....	384	Coffeyville-Little Rock.....	319
St. Louis-Pleasant Hill.....	249	Little Rock-Monroe.....	195
Kansas City-Joplin.....	163	Little Rock-Poplar Bluff.....	179
Nevada-Cotter	192	Alexandria-Gouldsboro	207
Kansas City-Omaha.....	205	Paragould-McGehee	189
Osawatomie-Hoisington	225	Dupo-Paragould	231
Hoisington-Pueblo	335	Dupo-Little Rock	371
Ft. Scott-Wichita.....	155	Atchison-Downs	208

Prior to the inauguration of classification, crews and engines were operated, for example, from

Dupo to Gale.....	112	Hoxie to Little Rock.....	119
Gale to Hoxie.....	139		

Operating Economies Effected

The following statement of comparable costs and performances of the various factors of train and terminal operation for the years 1925 and 1927 will, to some extent, reflect the benefits derived from the prior classification of freight trains:

	1927*	1925*	Per Cent Inc.	Per Cent Dec.
Average miles per car per day	39.1	37.2	5.1	
Gross tons per train.....	1,672	1,578	5.6	
Net tons per train.....	708	690	2.6	
Train miles per train hour	12.9	11.9	8.4	
Total gross ton miles.....	22,083,575,874	21,457,056,462	2.9	
Gross ton miles per train hour	21,525	18,701	15.1	
Net ton miles per train hour	9,115	8,179	11.5	
Average days detention to foreign cars on line... Switch engine hours worked	6.42 days	6.85 days		6.3
Yard overtime	323,679	358,825		9.8
Yard labor costs.....	\$273,744	\$283,740		3.7
Avg. cost per car handled	\$5,072.923	\$5,220.191		2.9
	30.4	31.3		2.9

* 10 Months—January to October.

It is interesting to note that, notwithstanding the fact that the density of traffic, as represented by total gross ton miles, increased 2.9 per cent during the first 10 months of 1927 over the same period of 1925, switch engine hours worked decreased 9.8 per cent, and the showing during 10 months of 1927 was adversely affected, both as to density of traffic and cost of operation, by the disastrous flood which was encountered in April and May and the suspension of operations in the Illinois coal mines from April to September, inclusive.

From the very inception of the revised classification system, a marked improvement was found in the movement of what is termed "tonnage" or "dead freight," and also in the movement of empty cars, both of which, under the system of classification in effect, are grouped in trains by destinations, with empties used when needed as "fill-outs," on the rear.

The benefits derived are plainly evident among all of the factors of train and terminal operations and are unquestionable as to expediting the movement of extra-divisional cars, cars originating at or destined to divisional points, avoiding the expense of rehandling cars

at intermediate terminals; conserving fuel; reducing wear and tear on equipment; and delays and damage claims by eliminating intermediate terminal switching.

To reduce clerical labor and delay to the cars at the larger yards and terminals, a system was devised of carding all cars at the point of loading or receipt from connections to destination or final junction point at which delivery to connecting lines would be made, with a special station symbol, block or group number to con-

DUPO TO TEXAS AND CALIFORNIA ST. LOUIS TERMINAL, ILLINOIS, MISSOURI AND ARKANSAS DIVISIONS

TRAIN 65

DUPO TO TEXARKANA

Special station symbol, block or station number.	Group freight from head end:	Disposition
L-S	Live stock.	All terminals, and where pick up made, maintain.
A-B	Re-icers, cars under standard ventilation, and protective service.	All terminals, and where pick up made, maintain.
T-X	For points: Texarkana. KCS and SSW at Texarkana. On T&P to, but not including Dallas. On T&P, Denton Division to, but not including Fort Worth; also, Texarkana to Shreveport, inclusive.	Poplar Bluff and Little Rock maintain.
L-J	For points: On I-GN and connections, routing via Texarkana and Longview Junction.	Poplar Bluff and Little Rock maintain.
D-S	For points: On T&P and connections, Dallas and beyond.	Poplar Bluff and Little Rock maintain.
Empties (See page 1, paragraph 5)		

Note—When a fill is needed for 65, cars in X-426 group, Barringer to Eldorado inclusive, shall be used and placed next to caboose.

Effective September 1, 1927.

—11—

"Maintracking" Across the Continent—A Sample Page From the Classification Book.

form with classification instructions, and it was put into effect at the same time.

Each section of the main line and branches of the Missouri Pacific proper is designated by a letter and a number to facilitate this carding, while the more important junction points are indicated by symbols consisting of two letters, such as "SL" for St. Louis, "MS" for Memphis, etc. As stated previously, the classification system is extended so as to include various subsidiary and connecting lines. The following list shows the number of pre-classifications made for various points on these lines.

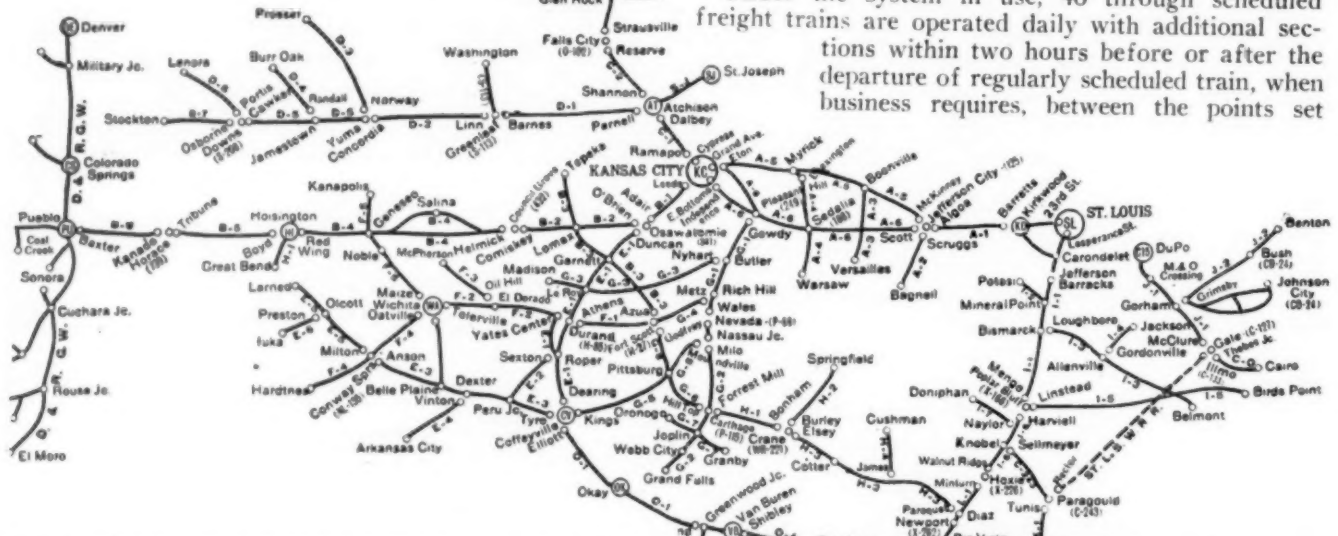
Texas & Pacific	14
Gulf Coast Lines	10
International-Great Northern	10
Denver & Rio Grande Western.....	8
Western Pacific	7

By this means, the "maintracking" system is extended over a wide area, from Ogden, Utah, Denver, Colo., and Omaha, Neb., on the north to Santa Fe, N. M., El Paso, Texas, Laredo and Brownsville and New Orleans, La., on the south, and from St. Louis, Mo., and Memphis, Tenn., on the east to San Francisco, Cal., on the west.

Of course, in order to bring about the successful and efficient operation of any particular system, the first and most important factor is to acquaint all concerned with the fundamentals and

train, is in position to handle immediately with division operating forces, any detention to or improper classification of any through scheduled train, and is also able to supply patrons with complete information as to the movement of any individual car. If any car is set out of a scheduled through train at any point short of destination on account of bad order, break in tonnage, or other reasons, this is reported immediately to the general superintendent of transportation and to the division operating forces, on a special form, by telegraph, and is followed closely until it has been classified and forwarded in the proper train.

Under the system in use, 46 through scheduled freight trains are operated daily with additional sections within two hours before or after the departure of regularly scheduled train, when business requires, between the points set



The Classification Map, Showing How The Plan Was Made Effective Despite Much Branch Line Mileage.

instructions governing the system inaugurated. Therefore, in compiling instructions governing the operation of "maintrackers," such instructions were combined into a loose-leaf book of pocket size, 4½ in. by 6½ in., in order that all employees interested can, without inconvenience, have in their possession at all times a copy of the instruction book. This book contains general instructions pertaining to the movement and classification of all freight, including perishable, live stock and explosives, as well as empty equipment. The classification to be given individual trains at originating terminals and the maintenance of such classification at intermediate terminals is outlined in detail as to the individual groups, contents of groups, maintenance and dispositions of individual groups at intermediate terminals, etc.

The Tracing System

In order to insure the maximum efficiency in the operation of "maintrackers" a very complete system, providing for following the movement and classification of each through scheduled freight train, has been installed in the office of the general superintendent of transportation. This system is maintained both day and night, the movement and handling of each train from originating terminal to destination being followed closely by both telegraph and telephone. A complete report of the consist of each train is furnished to the general superintendent of transportation by wire immediately after the departure of the train from the originating terminal and similar reports are furnished by wire from each intermediate terminal whenever a change is made in the train. Under this system, the office of the general superintendent of transportation is at all times thoroughly familiar with the movement and contents of each



forth in the list as it is shown here directly below.

St. Louis and New Orleans,
St. Louis and Houston-El Paso-San Antonio-Laredo, via G. C. I.
T. & P. and I.-G. N.,
St. Louis and Memphis.
St. Louis and Pueblo.
St. Louis and Wichita.
St. Louis and Omaha.
St. Louis and Kansas City.
Kansas City and Omaha.
Kansas City and Wichita.
Kansas City and Memphis.
Kansas City and New Orleans.

Kansas City and Houston-El Paso-San Antonio-Laredo, via G. C. L., T. & P., and I.-G. N., Kansas City and Texas-Oklahoma points, via Muskogee and K. O. & G.

When the flow of traffic permits, solid trains for one destination are forwarded, preference being given the freight in the block or group listed last for each train; otherwise the trains are classified at originating terminals as to destination and to permit trains to move through to destination on schedule with the least possible switching at intermediate yards or terminals. During the fruit and vegetable season, the heavy flow of this traffic from the West Coast and Southwest received through the Pueblo, Texarkana and Alexandria gateways, is moved in blocks and in solid trains on special schedules. Local freight trains are operated so as to arrive at destination terminals in ample time so that any through traffic which they may have that originated on their respective districts can be classified into the proper through scheduled trains. Instructions require the intermediate terminals to cut into the train in the proper group, any freight they may have for through trains, or in other words, maintain the classification through to destination.

At the last terminal short of the destination, loads and empties destined to points on the next division are placed in the train as directed by the superintendent of the division to which the cars are destined. As a rule, this classification is made in station order. However, this is controlled by a number of special conditions, such as, for example, changing from a tri-weekly local to a daily local, or vice versa. This and other circumstances may cause the superintendent to desire the classification changed from time to time.

The system of maintracking has not solved all of the terminal problems, but it has made it possible to overcome many of them and minimize others to a point where they can be solved more successfully.

New Freight Service into Mobile

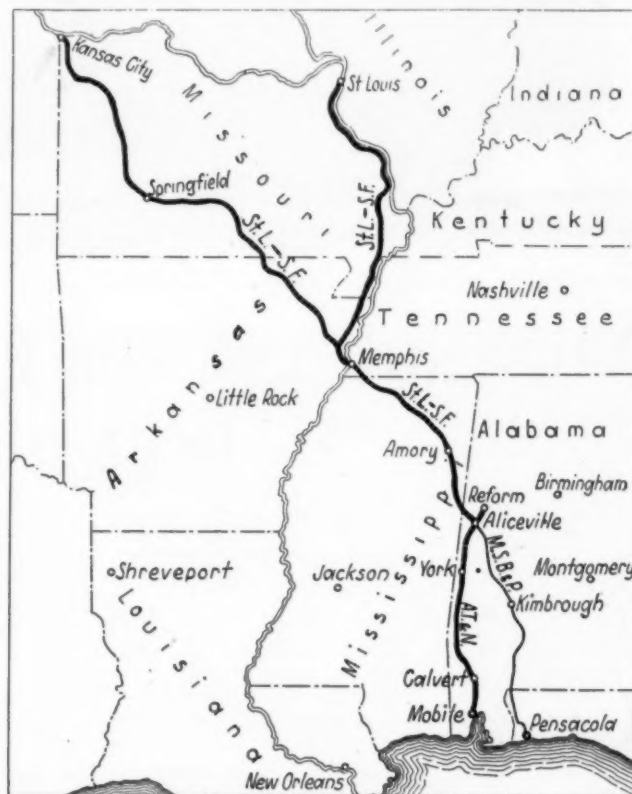
A NEW freight service into Mobile, Ala., from the West and North has been established by the Alabama, Tennessee & Northern under a traffic agreement with the St. Louis-San Francisco whereby each railroad delivers to the other all unrouted business. The Alabama, Tennessee & Northern has only recently completed an extension into Mobile and this traffic agreement assumes added importance by reason of the construction at Mobile by the State Docks Commission of a \$10,000,000-dock project designed to handle an increased tonnage of western products moving to the Gulf of Mexico for export as well as increased imports.

Originally this railroad extended from Reform, Ala., to Calvert, 186 miles. During 1927 a 34-mile extension was constructed into Mobile with a ruling grade of 0.5 per cent, less than one mile long, and four curves, none of which is sharper than two degrees. This extension was laid with 85 lb. rail and bridges and trestles were constructed to conform to Cooper's E-60 loading. The total cost was approximately \$1,000,000.

At the same time the old line is undergoing virtual reconstruction with the laying of 85 lb. rails, the strengthening of bridges and trestles, the enlargement of shops and the realignment of track to provide a maximum grade of 1 per cent.

Freight is received from and delivered to the Frisco at Aliceville, Ala., 199 miles from Mobile on the Amory-Aliceville branch of the Memphis-Birmingham

line of the Frisco. Aliceville is 297 miles from Memphis, Tenn., and 681 miles from Kansas City, Mo. With this connection shippers are given third morning delivery at Mobile from Kansas City and Chicago and second morning delivery from St. Louis, Mo., and Memphis. The same service is provided in the opposite direction



Frisco-Alabama, Tennessee & Northern Through Freight Route Into Mobile

with imports loaded at Mobile before 6 o'clock in the evening delivered in St. Louis at noon on the second day and in Kansas City and Chicago in the morning of the third day. Both railroads have inaugurated fast freight schedules to make this service possible.

The Alabama, Tennessee & Northern also provides an outlet for shipments from the coal fields of Alabama, a large number of which are located on the Frisco, into Mobile where the State Docks Commission has under construction, at a cost of \$750,000, a coal tipple for the handling of both bunker and shipped coal.



International

Davis, Calif., on the California Pacific (now Southern Pacific) in 1868—Locomotive Built by William Mason, Taunton, Mass.



Diner 5138 is the First Car to Be Completely Equipped with Electrical Refrigeration

Milwaukee Uses Electrical Refrigeration on Diners

Early development work with single boxes has led to complete elimination of "ice" boxes on some cars

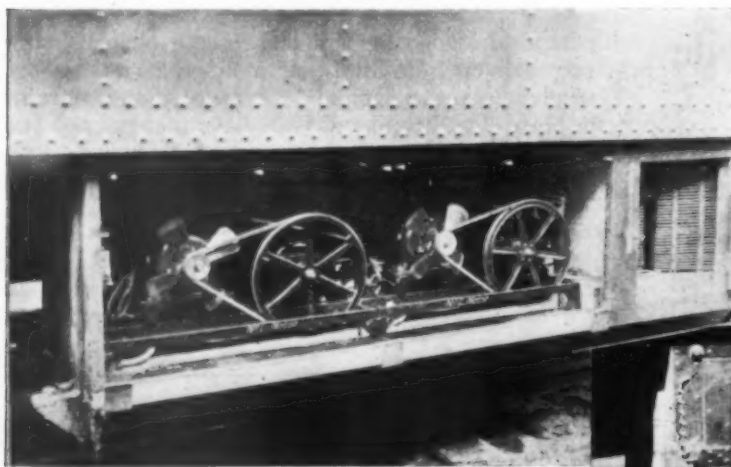
By W. C. Marshall

Train Lighting Maintainer, Chicago, Milwaukee, St. Paul & Pacific, Milwaukee, Wis.

ONE of the most difficult problems of the dining car department of any railroad is the preservation of food-stuffs carried on dining cars. The necessarily large quantity of food carried and the limited amount of space available on these cars add to the problem. On certain runs where cars are required to

certain unsatisfactory operating features of dining car refrigerators could be eliminated. It was decided first to attempt mechanical refrigeration in the main meat refrigerator located in the kitchen of the car. On account of the extremely high kitchen temperature it was found necessary to increase the insulation and provide better fitting doors for this refrigerator. A minimum of three inches of cork-board was used for insulation and an even greater thickness wherever it was possible. This cork-board was sealed with a non-odorant cement.

The cooling unit was located in the top of the refrigerator, this being done to control the tem-

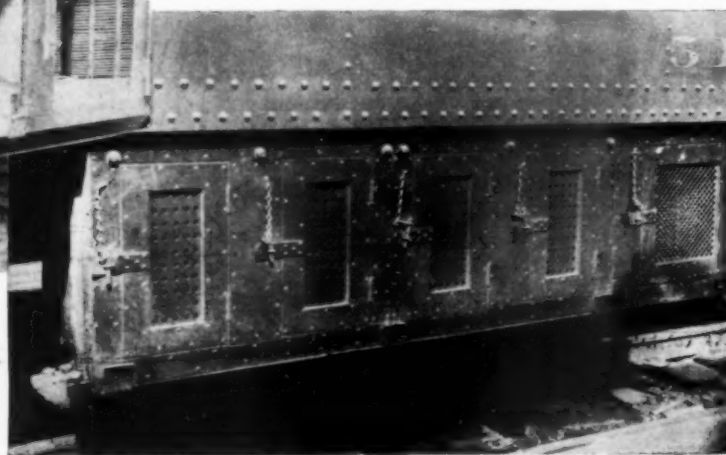


Compressor and Condenser Compartment With Service Doors Removed

carry several days supply of food, the refrigerator shelves are overcrowded to the extent that proper air circulation through the shelves is cut off, causing a wide range of temperature between the bottom and top shelves. This condition causes considerable spoilage of food, especially where it is necessary for the cars to go for some time between terminals equipped for icing of cars.

The Chicago, Milwaukee, St. Paul & Pacific started developing a type of refrigerator in which it was hoped

perature more easily in all the shelves. In order to eliminate the possibility of stoppage of air circulation through the shelves, cold and warm ducts were installed, these air ducts extending from the front to the back of the box



Compartment with Service Doors in Place

and from the insulated baffle plates below the cooling unit to the bottom of the box.

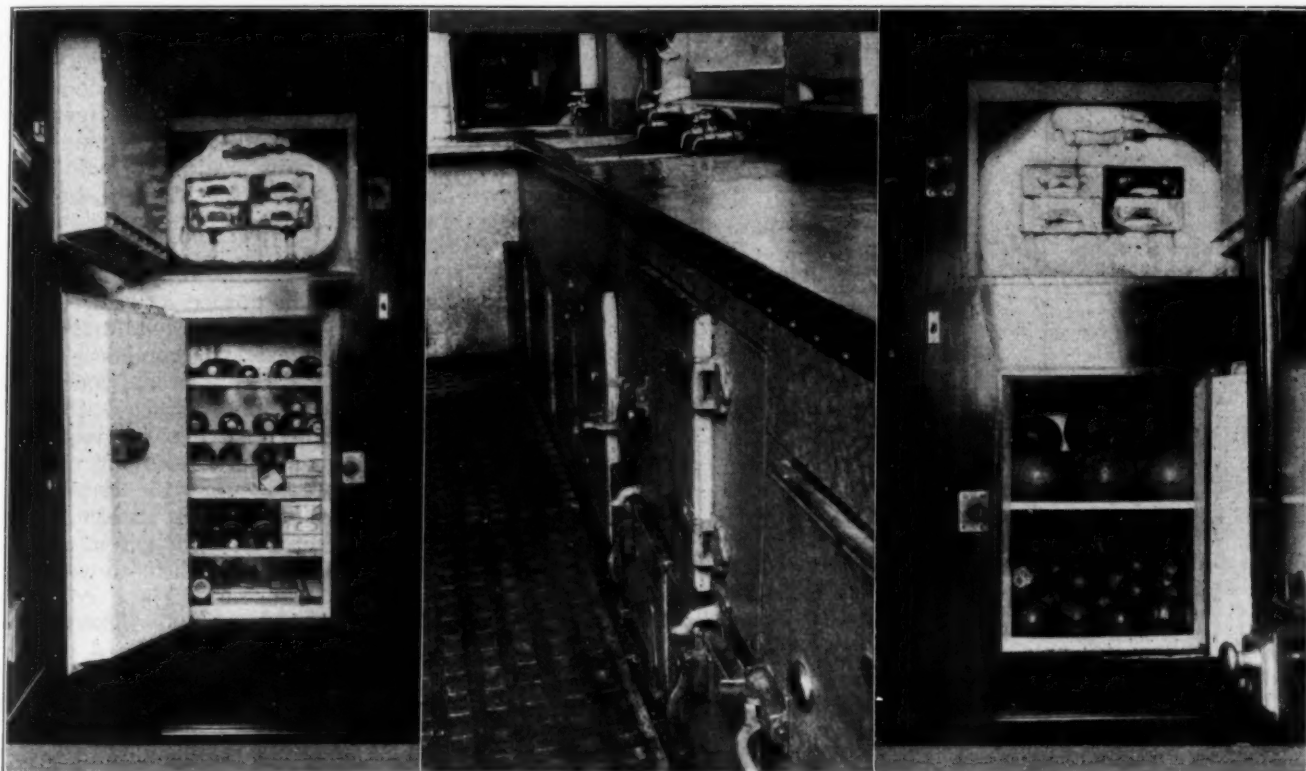
Features of Refrigerator Box

One of the drawings shows the refrigerator construction in which the method of air circulation has been changed to meet better the requirements on dining cars. Three air ducts have been provided in this refrigerator, extending from the bottom of the insulated baffle plates to the bottom of the refrigerator. One air duct is located in the center and the other two on the sides of the box. The air passing through the fin coil is cooled and carried downward through the center air duct to the bottom of the box. About six inches from the bottom of the center or cold air duct is a perforated plate, in which the size of the perforations regulate the amount of back pressure in this cold air duct. By this

being fitted with louvered doors to allow proper air circulation across the condensing coils. On the more recent installations the compressor unit compartments have been located under the car with the condensing coils isolated in a separate compartment and open to the outside air. In this manner the coils are kept at a lower temperature and the compressor can be operated at lower pressure. By this arrangement the operating time of the compressor was decreased. A $\frac{1}{2}$ -hp. air-cooled compressor unit was used to take care of the single box installations. Seven dining cars are now so equipped and all of them work satisfactorily. These cars have various types of axle generators of from three to four kw. capacity and are equipped with two sets of 300-a.h. lead batteries connected in parallel.

Complete Refrigeration of Dining Cars

During September, 1927, we turned out the first



Left—Bottle Goods Locker with Four Ice Cube Trays in Cooling Unit; Center—Counter Refrigerator in the Kitchen Where Fish Is Kept; Right—Fruit and Vegetable Locker

construction, the proper distribution of air is obtained from the cold air duct to the several compartments.

Each shelf compartment in the box is equipped with solid sheet metal shelves. The advantages of the solid shelf over the screen type ordinarily used in ice box construction is that with the described method of air circulation, the shelves can be completely covered with food without hindering proper circulation. The side walls of the shelves are solid up to within a few inches of the top, from which point they extend at an angle out into the cold and warm air ducts. By making these shelf wall lips adjustable, the amount of cold air entering each compartment can be controlled, thus providing an adjustable temperature regulation for each compartment.

The compressor unit compartment on the first few installations was recessed in the back of the refrigerator from the outside of the car, in order to give easy access to the compressor and motor, the outside face

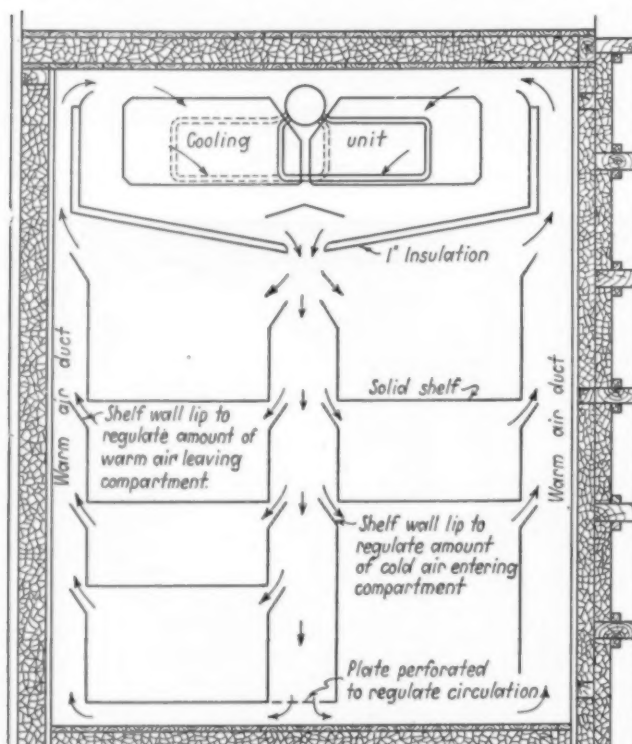
dining car completely equipped with mechanically-operated refrigeration. The main kitchen refrigerator is the same as previously described, the cooling unit being a fin coil located in the top of the refrigerator. In fact, no brine tanks are used in any of the refrigerators or chill boxes in this installation.

The counter fish box located in the kitchen is insulated with three inches or more of cork-board and is equipped with side doors. The fish are kept in metal containers or drawers so located as to not allow any air circulation over the fish. This was done to prevent the fish from losing their moisture. The cold air from the cooling fins passes on two sides of these fish drawers and then up through the shelves used for other sea foods. It has been found that in this manner fish can be kept without ice for from 8 to 10 days. The unit is so adjusted as to keep the fish drawers at about 33 deg. F.

The cooling units in the two kitchen refrigerators

are taken care of by one of the two $\frac{1}{2}$ -hp. air-cooled compressor units located under the car.

The pantry refrigerator, ice cube storage bin and ice cream cabinet are built in the counter. These are all equipped with side doors. The milk and butter chill box has its cooling unit in the corner of the counter, as shown in the general floor plan. This fin coil or cooling unit takes care of the cooling of the milk and butter compartment, and also the ice cube storage bin and is separated from the two compartments by in-



A Novel Type of Shelf Construction is Used in the Kitchen Refrigerators to Secure Temperature Control

insulated baffle plates extending from $2\frac{1}{2}$ -in. above the floor to within 3 in. of the top. The 6 in. of insulation on the kitchen end of the counter is necessary on account of being next to the steam table.

The ice cube bin is a metal container sloping down

ter compartment is held at from 40 to 42 deg. F., the ice cube bin at about 34 deg. F., and the ice cream cabinet at about 3 deg. F. above zero.

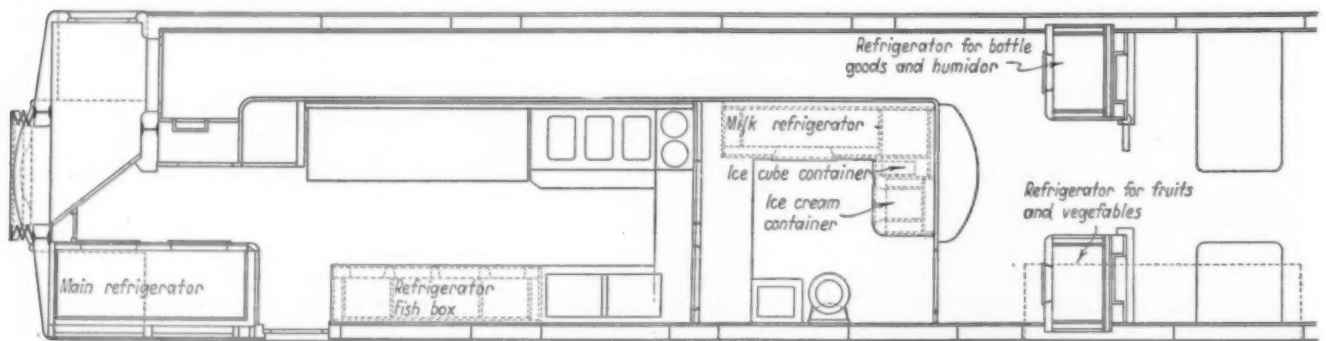
Two chill lockers located in the main body of the car take care of the bottle goods, fruit and vegetables. The cooling unit in each of these lockers is equipped with ice cube trays capable of manufacturing 96 ice cubes at one freezing, thus giving a capacity for the car of 192 ice cubes per freezing cycle. Under normal operating conditions, three freezing cycles every 24 hours are sufficient to take care of the needs of the car. In the bottle goods locker, the ice-making unit is located above the insulated baffle plate. Metal frames equipped with properly spaced rods carry the bottle goods. In the fruit and vegetable locker, as in the bottle goods locker, the ice-making unit is placed above the baffle plate. The air circulation is carried out the same as in the main refrigerator in the kitchen. The temperature of these two lockers is held at about 45 deg. F.

Wherever possible the fronts of all of the refrigerators in the car are made hollow and filled with cork-board to cut down heat leakage and all of the doors are fitted with compression strips to make the refrigerators as nearly air tight as possible. All of the cooling units in the refrigerators in the pantry and the main body of the car are taken care of by the other $\frac{1}{2}$ -hp. air-cooled compressor unit located under the car.

Compressor Units are Mounted Beneath Car

It has been found that the proper location of the compressor units and condensing coils is vital to the successful operation of the system. The condensing coils have been removed from the compressor frames and located in a compartment by themselves at the forward end of the unit compartment. As this car is always operated in the same relative direction with respect to the location of the compressor unit, the condensing coils get the full benefit of the air circulation due to the speed of the train. The sides and bottom of this compartment are fitted with heavy mesh to allow plenty of air circulation around the coils. These coils are placed in a "V" shape and a 12-in. fan is mounted on the end of the compartment to furnish forced ventilation while the car is not in motion. This fan is so connected that it cuts in or out with either compressor unit.

The two compressor units are located in a compart-



Plan of Kitchen End of Dining Car Showing Boxes Now Cooled by Electrical Refrigeration

at the back for drainage, the door of which hinges at the bottom.

Adjacent to the ice cube bin is the ice cream cabinet which is insulated with from four to six inches of cork-board. The cooling unit is a coil in which the metal container has been placed for holding brick ice cream. The temperature of the milk and but-

ment adjacent to that holding the condensing coils. The front of this compartment is so constructed that it can be removed easily.

Perforated service doors have been constructed in this front to allow easy inspection and access for adjusting the apparatus. The compressor unit operating the refrigerators in the pantry and main body of the car is

equipped with an automatic regulating valve. This is done to obtain the variation in operating temperatures between the ice cream cabinet and the other refrigerators connected to this unit.

Electrical Control and Operation

The two ½-hp. motors driving the two compressor units are connected directly to the storage battery through separate circuits. These two circuits are equipped with knife switches and fuse blocks in the switch locker inside the car. Each motor has a service switch in the unit compartment under the car. A pilot light connected across each motor circuit between the fuse block and the automatic switch is located on the front of the main kitchen refrigerator. These pilot lights burn continually except when the circuits are opened by the switches or blown fuses. The automatic switch connected in each motor circuit is operated by a pressure bellows connection in the suction line of the compressor and is operated indirectly by the temperature in the refrigerators.

Generator

This dining car is equipped with a 5-kw. Safety axle generator and a 600-ampere-hour Iron Clad Exide battery. The refrigerating apparatus is standard Frigidaire equipment. This car has now been in service for slightly over five months and so far has needed only a few minor adjustments. From tests taken on this completely refrigerated car and the other dining cars which are equipped with the single mechanically-refrigerated boxes, it has been found that the running time of the compressors is about 40 per cent. This running time increases during the warm weather to about 65 per cent and decreases to about 20 per cent during cold weather. So far the operation indicates a considerable saving in food, not to mention the saving through the elimination of ice, and the cost of handling ice.

Revised Consolidation Bill is Reported

WASHINGTON, D. C.

THE revised Parker railway consolidation bill, representing the results of lengthy and painstaking deliberations of the House committee on interstate and foreign commerce for several weeks since the conclusion of hearings, as well as during the last session of Congress, was ordered favorably reported to the House on April 3 by the committee by a vote of 13 to 6. The revised bill, H. R. 12,620, was introduced in the House on the day before by Chairman Parker of the committee, succeeding the former bill, H. R. 17,403 of the last session, and referred back to the committee.

Chairman Parker also issued a statement saying that every effort will be made to bring the bill up in the House at the earliest possible moment and that he was confident that it will pass the House in time to give the Senate an adequate opportunity to consider it. Passage of the bill by the House is expected, but there is doubt as to how it will be received in the Senate. A sub-committee of three members of the Senate committee on interstate commerce, appointed to draft a bill, has been awaiting the results of the hard work devoted to the bill and the various suggested amendments by the House committee. It is considered possible that the sub-committee, headed by Senator Fess, may be able

to get a bill through the committee, but comparatively little interest has been shown in the subject in the Senate and a minority is likely to oppose any such bill very strenuously.

One of the provisions of the earlier drafts of the bill which was opposed by the representatives of the railroads has been omitted from the bill as revised. This would have limited the capitalization of a consolidated company to no more than the total of the commission's valuations of the properties involved. A similar provision is in the consolidation section of the Transportation Act. The new bill provides that the issuance of securities shall be subject to all the provisions of Section 20a but that "in no case shall the commission authorize the issuance of securities based upon a capitalization of intangible values resulting from the proposed unification."

Another provision omitted is one that would have directed the commission to make an extensive study of the short line situation but the bill provides that "the carriers and the commission shall give due consideration to the inclusion in the plan of short and of weak carriers in the territory involved."

Some of the chief features of the revised bill were explained by Chairman Parker in his statement as follows:

Briefly, the primary purpose of the bill is to give effect to the established policy of permitting the voluntary unification of railroads and their properties. The bill has two main features: First, it affords greater and more effective protection to the public in railroad consolidations, so that only consolidations which effectively promote the public interest will be authorized; and second, it affords to the carriers more flexible methods for carrying into effect a plan which has been approved.

The interests of the public will be fully protected as the result of section 202, which reads as follows:

"The unification of carriers or of property of carriers, through any method or procedure provided for in this title, is hereby authorized in any case in which, in the opinion of the Interstate Commerce Commission, such unification will promote the public interest. In determining the public interest the Commission shall give due consideration to the maintenance of competition between carriers and the prevention of any undue lessening of existing competition, the preservation and improvement of the service afforded by the necessary weak or short lines, the promotion of economy, the affording of better service, the securing of a simplified and more effective regulation of carriers, the ultimate establishment of a number of strong and efficient systems well balanced within themselves and with other systems, and to such other factors as may be in the public interest."

If the Interstate Commerce Commission determines that the proposal will promote the public interest and approves the plan, the carriers may carry out a proposed unification through a corporate merger, a corporate consolidation under state law, an acquisition of control through stock ownership, or an acquisition of properties by purchase, lease or otherwise.

The bill also removes the defects of the present law. The requirement that the Interstate Commerce Commission first establish a plan for consolidation is repealed. The inadequacy of the present law from the point of view of corporate power and procedure is remedied by the grant of adequate power if the Commission approves the plan and by prescribing in detail the corporate procedure and machinery for carrying an approved plan into effect.

Full protection is given dissenting stockholders by compelling the payment in cash to those who do not desire to remain stockholders. The provisions of paragraph (2) of section 5 of the present law, which have been subjected to rather severe criticism, are repealed so that if the new bill becomes law it will prescribe the sole and exclusive method by which carriers and their properties may be unified. The interests of the short and the weak line carriers are guarded and protected adequately.

It is not asserted that railroad consolidations will remove all the difficulties of today in maintaining adequate transportation by rail and an effective regulation of carriers engaged in such transportation. But I feel certain that a large majority of the committee is convinced that the enactment of the bill will prove a very substantial step forward. In fact, consolidations present the only effective method by which many

of our present railroad difficulties can be removed. For example, the problems of weak carriers will be solved only by making them a part of a strong system. Substantial and effective competition, primarily in service, but to some extent also in rates, can be produced only by the creation of strong, well-balanced systems.

Argument is not required upon the soundness of the policy of railroad consolidations. This policy has been established by the Congress, has been repeatedly recommended by the President, and has been indorsed by carriers and shippers. I earnestly hope that the proposed legislation will be enacted into law at this session of the Congress.

Rail Output in 1927

THE production of steel rails in the United States in 1927 totaled 2,806,390 gross tons, a decrease of 411,259 tons, or 12.5 per cent, from the output of the preceding year. The total is also smaller than for the years 1916, 1917 and 1923, but with these exceptions, it exceeds that of any year since 1913. These figures, which were compiled by the American Iron and Steel Institute, show that the trend toward heavier rail, which has been marked of late years, is still continuing and that while the total production of rails decreased over 400,000 tons from 1926 the decrease in rails weighing 100 lb. per yard or heavier, amounted only to 34,492 tons. To put it in another way, this classification accounted for 68.8 per cent of the total output in 1927, as compared with 61.1 per cent in the preceding year. In the statistics for 1927 a slight change is made in the method of showing the tonnages for rails weighing 100 lb. per yard and over, by classing them as 100 lb. and less than 120 lb., with a separate column for rails more than 120 lb.

That the production of Bessemer steel rails has almost entirely ceased is shown by the fact that the tonnage rolled in 1927 amounted to only 1,566, as compared with 12,533 tons in 1926 and to the further fact that the 1927 output was confined to rails weighing less than 50 lb. to the yard. There was also a marked decrease in the production of alloy treated rails, the total production being 1,265 tons, of which 1,188 tons was of manganese steel and 77 tons of all other alloys. The records show no titanium alloy rails rolled in 1927.

Production of Rails by Processes, Gross Tons, 1912-1927.

Years	Open-hearth	Bessemer	Rerolled*	Electric	Total
1912	2,105,144	1,099,926	119,390	3,455	3,327,915
1913	2,527,710	817,591	155,043	2,436	3,502,780
1914	1,525,851	323,897	95,169	178	1,945,095
1915	1,775,168	326,952	102,083	...	2,204,203
1916	2,269,600	440,092	144,826	...	2,854,518
1917	2,292,197	533,325	118,639	...	2,944,161
1918	1,945,443	494,193	101,256	...	2,540,892
1919	1,893,250	214,121	96,422	50	2,203,843
1920	2,334,222	142,899	126,698	297	2,604,116
1921	2,027,215	55,559	96,039	5	2,178,818
1922	2,033,000	22,317	116,459	...	2,171,776
1923	2,738,779	25,877	139,742	118	2,904,516
1924	2,307,533	16,069	109,730	...	2,433,332
1925	2,691,823	9,687	83,747	...	2,785,257
1926	3,107,992	12,533	97,124	...	3,217,649
1927	2,717,865	1,566	86,959	...	2,806,390

* Rerolled from old steel rails.

Production of Rails by Weight Per Yard, 1914-1927

	Under 50 pounds	50 and less than 85	85 and less than 100	100 and less than 120	120 pounds and over	Total gross tons
1914	238,423	309,865	868,104	528,703		1,945,095
1915	254,101	518,291	742,816	688,995		2,204,203
1916	295,535	566,791	1,225,341	766,851		2,854,518
1917	308,258	882,673	989,704	763,526		2,944,161
1918	395,124	665,165	888,141	592,462		2,540,892
1919	263,803	495,577	965,571	478,892		2,203,843
1920	489,043	433,333	952,622	729,118		2,604,116
1921	211,568	214,936	902,748	849,566		2,178,818
1922	265,541	274,731	728,604	902,900		2,171,776
1923	272,794	300,907	864,965	1,465,850		2,904,516
1924	191,046	213,274	853,431	1,175,581		2,433,332
1925	163,607	219,648	765,371	1,636,631		2,785,257
1926	197,260	256,287	797,662	1,966,440		3,217,649
1927	161,740	173,257	539,445	1,314,424	617,524	2,806,390

Production of Alloy-Treated Steel Rails, 1918-1927

Years	Total production Gross tons	Production by alloys		Production by processes		Production by weight per yard				
		Titanium	Other alloys	Openhearth and electric	Bessemer	Under 50 lbs.	50 and under 85 lbs.	85 and under 100 lbs.	100 and under 120 lbs.	120 lbs. and over
1918	3,111	2,891	220	3,111	...	47	2,640	424	...	...
1919	6,476	6,207	269	6,476	...	...	3,920	2,556	...	...
1920	12,909	11,652	1,257	12,909	...	514	5,069	7,326	...	...
1921	6,276	2,804	3,472	6,276	...	71	4,277	1,928	...	...
1922	3,163	2,493	670	3,163	...	321	835	2,007	...	...
1923	2,142	346	1,796	2,142	...	56	317	1,769	...	...
1924	5,167	1,696	3,471	5,167	...	...	847	4,320	...	...
1925	4,009	1,616	2,393	4,009	...	70	47	3,892	...	...
1926	4,216	1,099	3,117	4,216	...	...	42	1,027	3,147	...
1927	1,265	...	1,265	1,265	...	...	374	391	500	...

Freight Car Loading

REVENUE freight car loading during the week ended March 24 amounted to 950,428 cars, a decrease of 53,108 cars as compared with loading in the corresponding week of last year and of 17,517 cars as compared with 1926. Among the commodity classifications only grain and grain products and livestock showed an increase as compared with loading a year ago. Coal loading, with a total of 157,077 cars, was 49,309 cars under that of the corresponding week of last year.

Loading in the Northwestern and Southwestern districts was greater than a year ago. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading

Districts	Week Ending Saturday, March 24, 1928		
	1928	1927	1926
Eastern	215,216	231,501	236,971
Allegheny	188,184	211,645	197,366
Pocahontas	51,005	60,543	50,217
Southern	163,863	166,742	160,397
Northwestern	119,754	116,069	117,748
Central Western	135,486	141,466	133,360
Southwestern	76,920	75,570	72,156
Total Western Districts	332,160	333,105	322,994
Total All Roads	950,428	1,003,536	967,945
Commodities			
Grain and Grain Products	46,599	36,957	38,280
Live Stock	28,055	27,097	27,304
Coal	157,077	206,386	171,426
Coke	10,330	12,058	13,283
Forest Products	69,290	70,893	78,129
Ore	8,548	11,357	10,979
Mdse. L.C.L.	260,641	262,511	266,966
Miscellaneous	369,888	376,277	361,578
March 24	950,428	1,003,536	967,945
March 17	942,086	1,001,932	977,018
March 10	951,553	1,000,754	967,425
March 3	959,537	989,863	965,009
February 25	869,590	918,858	912,935

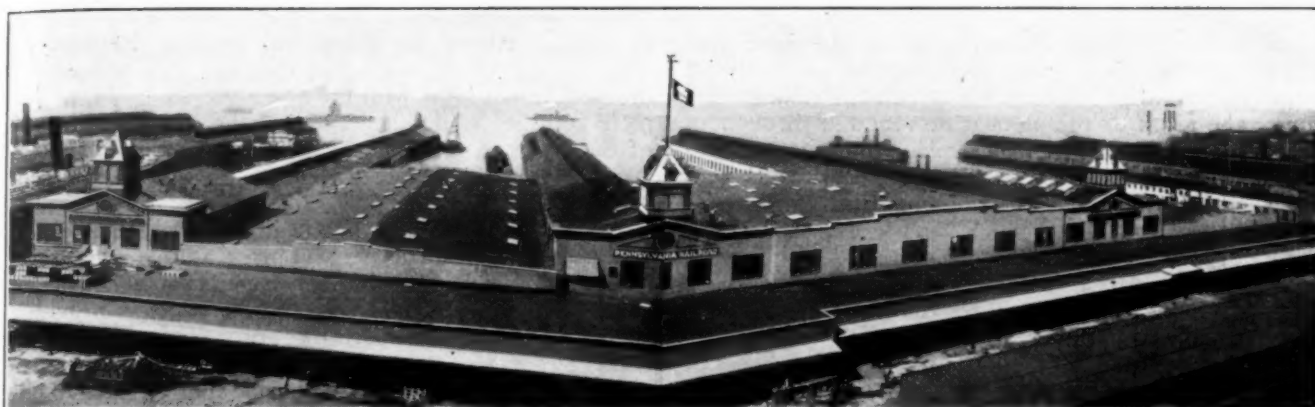
Cumulative loading, 12 weeks 10,841,021 11,554,663 11,241,425

The freight car surplus averaged 340,195 cars on March 15, as compared with 352,854 cars on March 8. The total included 130,748 box cars, 161,645 coal cars, 24,475 stock cars and 12,526 refrigerator cars.

Car Loading in Canada

Revenue car loadings at stations in Canada for the week ended March 24 totalled 64,374 cars, a decrease of 733 cars from the previous week and an increase of 1,573 cars over the same week last year.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada		
March 24, 1928	64,374	42,151
March 17, 1928	65,107	45,422
March 10, 1928	62,497	43,370
March 26, 1927	62,801	41,092
Cumulative Totals for Canada		
March 24, 1928	756,787	474,173
March 26, 1927	728,525	466,024
March 27, 1926	662,437	444,566



Looking Over the Bulkhead and Piers of the Enlarged Terminal.

Pennsylvania Enlarges Its New York Produce Terminals

Provides enlarged and modern facilities for rapidly growing traffic

AN outstanding example of the manner in which changing traffic conditions make necessary the reconstruction of facilities once adequate is afforded by the extensive revision of perishable produce facilities which the Pennsylvania has completed on lower Manhattan Island, New York City. For over 40 years the Pennsylvania has handled its produce traffic for New York at piers 27, 28 and 29 along the Hudson River waterfront. These piers, which, are each approximately 1,000 ft. long by 75 ft. wide, were connected across the shore end by a shed-covered bulkhead which faced on West street, the main waterfront drive of lower New York. In 1926 it became obvious that additional facilities would be required, so early in 1927 the road undertook the rehabilitation of its existing facilities, in the course of which 241,230 sq. ft. of covered planked floor area has been enlarged to 359,530 sq. ft. of covered reinforced concrete deck; the four auction rooms of the old terminal have been increased to eight; heating and lighting facilities have been modernized, and spacious lunch room facilities have been provided, these improvements costing in the neighborhood of \$1,750,000.

The old facilities consisted of pier No. 27, about 990 ft. long by 75 ft. wide; pier No. 28, about 980 ft. long by 75 ft. wide and pier No. 29, which was approximately 1,000 ft. long by 80 ft. wide. At the shore end, these piers were connected by a shed-covered bulkhead, about 50 ft. wide, and with a frontage of 715 ft. on West street, this frontage being equipped with a large number of vertical-lift folding wood doors. All three piers had dock space on both sides throughout their length, the slips between the piers being about 140 ft. wide.

The piers themselves, which were constructed of timber piling with a heavy timber deck, were entirely enclosed with corrugated metal siding and twin sliding wood doors, and with a timber-covered monitor-top roof, supported on light structural steel roof trusses. The principal difference in the construction of the three piers was that the shed framework of piers No. 27 and 28 was of heavy timber construction, while that of pier 29 was of structural steel.

The improvements which have been made have left the piers unchanged in size, shape or location, except that the inshore ends of the piers were made a part of



The Interior of One of the Bulkhead Extensions, Showing Type of Construction and the Wide Driveways Provided

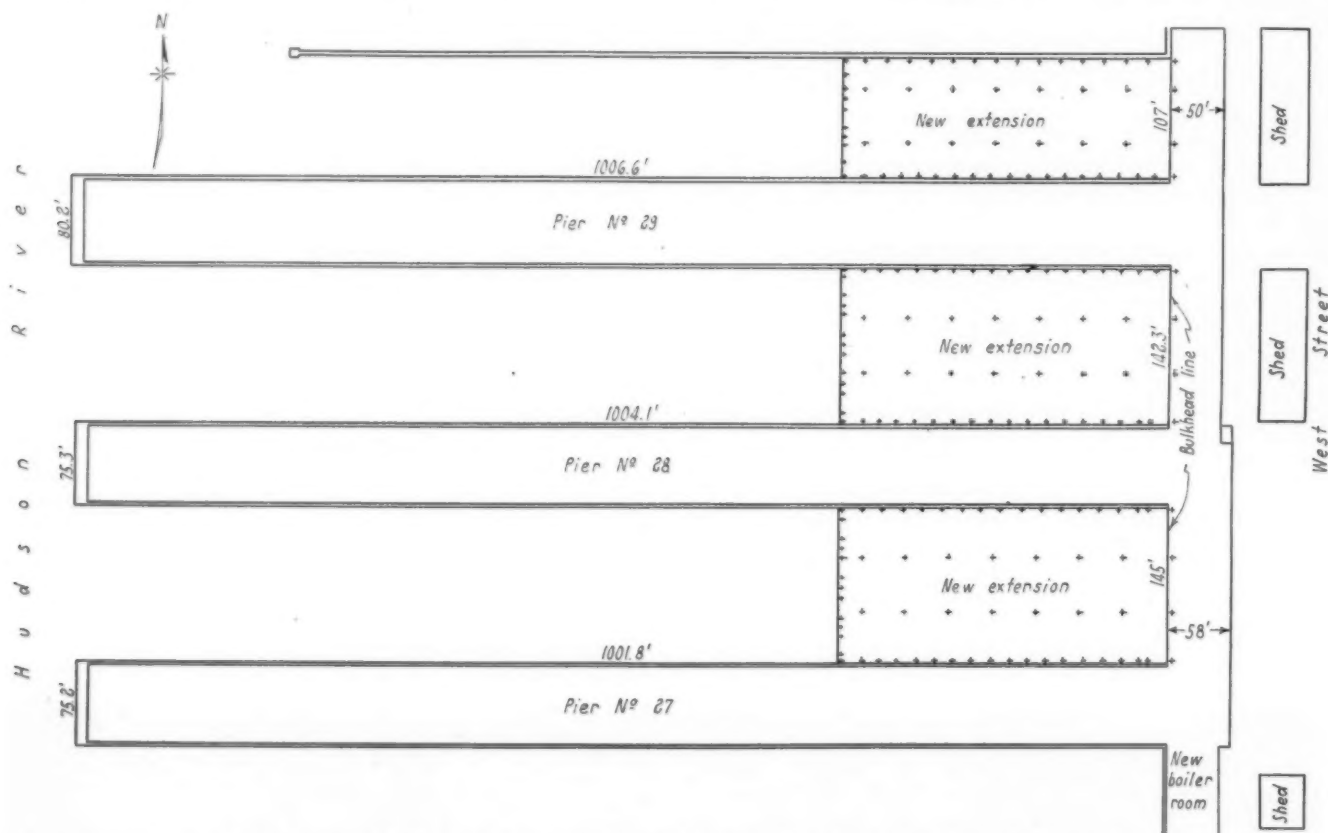
a new bulkhead shed. However, all of the more than 200 old wooden doors in the piers and the old bulkhead were replaced with modern hand-operated rolling steel doors; the roofs of the piers were renewed throughout with built-up roofing; and the plank flooring was replaced by a 12-in. reinforced concrete deck. The pier sub-structures were renewed where necessary, new piles and caps replacing those which showed evidence of decay or deterioration, and the old oak fenders being renewed. When the sub-structure of each pier had been repaired, it was covered throughout with four-inch plank flooring, which in turn supported the 12-in. reinforced concrete deck. In connection with the repair of the piers, the old bulkhead was also completely renovated and a 12-in. reinforced concrete deck substituted for the plank flooring.

118,300 Sq. Ft. is Added to Old Bulkhead

These improvements form only a minor part of the work carried out by the Pennsylvania on its lower Manhattan produce terminal, for in order to enlarge its capacity it added approximately 118,300 sq. ft. of trucking and display area to the old bulkhead, and approximately 14,800 sq. ft. to the office and auxiliary facilities

in length. Above the piling and capping the flooring consists of a 12-in. reinforced concrete slab, adequately drained, which joins with the new concrete decks on the piers and the old bulkhead. Thus the entire main deck of the enlarged terminal, including approximately 360,000 sq. ft. is of reinforced concrete on substantially the same level.

In enclosing the new bulkhead area, practically the same type of construction was used as in the original structure. Typical of this construction is that used in the unit between piers No. 27 and 28, which is provided with a double-pitched board roof, protected with built-up asphalt roofing, and supported on light structural steel roof trusses. As the new sections added to the bulkhead vary from 107 ft. to 145 ft. in width, the roof trusses are in three units, a long central span, supplemented on each end by a span of shorter length, this arrangement having been adopted in order to preclude the increased weight and depth of single-span construction. This made necessary two intermediate rows of structural steel columns, but as the nearest column spacing under the three-span arrangement is in excess of 30 ft., this is not objectionable for the columns in no way interfere with trucking or the display of produce.



General Plan of the Pennsylvania's New York Produce Terminal Showing the Additional Bulkhead Area Provided

on the second floor level. The additional main deck area was provided in three units by extending the old bulkhead toward the river and reclaiming a portion of the slip areas serving the piers. Thus 300 ft. of the two slips between the three piers, and likewise, 300 ft. of the most northerly slip, serving pier 29, were added to the old bulkhead.

In making available this additional space, the occupied slip areas were driven with piling to form the new bulkhead sub-structure, this work, together with the repair of the old sub-structure of the piers, requiring the driving of about 2700 piles, varying from 55 ft. to 75 ft.

At the junction of the new bulkhead areas and the old piers, the problem of close and irregular column spacing arising because of the difference in the distance between the trusses of the old and new roofs was overcome by reinforcing the old pier columns and connecting them with eave girders which in turn carry the load of the new roof trusses.

The waterfront ends of the new bulkhead extensions are faced with corrugated steel siding to match the piers, and are provided with rolling steel doors, there being four such doors in the extensions between piers 27 and 28, and between 28 and 29, and three in the ex-

tension lying north of pier No. 29. When all of the exterior work was completed on the new additions, the siding of the old piers included within the extensions to the bulkhead, was removed, thereby providing one clear bulkhead area of approximately 222,000 sq. ft. as compared with the old area of approximately 34,000 sq. ft., the only obstructions within the new bulkhead being the widely spaced rows of roof-supporting columns. To adapt this extensive area to the handling and display of produce, skylights were provided at frequent intervals throughout the roof in order to afford adequate daylighting, and a complete new installation of 200 and 500-watt lamps, equipped with reflectors, was provided to permit trucking and the display of produce at night equally as well as during the daytime.

New Auction Rooms Expedite Sale and Delivery of Produce

In addition to the improvements on the main deck of the terminal, others were made on the floor above over about one-third of the extension to the bulkhead between piers No. 28 and 29, connecting on each side with



An Auction Under Way in One of the New Auction Rooms

the small second floor areas which formerly existed directly over the shore ends of both piers 28 and 29. The space within this new second floor area, which includes approximately 14,800 sq. ft., has been divided into two main sections, the front half being occupied by four new auction rooms and a general lavatory and toilet room, while the rear half, or that toward the river, is divided into space for an auctioneer's wash and dressing room, a kitchen, a lunch and dining room, and alcoves for telephones. These two main sections are separated by a hallway which affords access to all of the new second floor facilities, and which also serves as a connection between the old second floor areas in piers 28 and 29.

The new auction rooms, supplementing the four old auction rooms in pier 29, are of special interest. They are approximately 60 ft. long by 33 ft. wide, and are each provided with 200 seats, while the floor slopes toward the front of the rooms so that a clear view of the elevated auction stand is provided. These rooms are light and airy, have plaster finish walls, and are equipped with Tileine sanitary floors.

The lunch and dining rooms at the terminal, as already stated, lie along the waterfront side of the new second floor area, and occupy a space 93 ft. long by 35 ft. wide. This space is divided into two parts by a low partition wall, the larger part, 60 ft. long by 35 ft. wide

being occupied by the lunch room, which is equipped with a series of U-shaped lunch counters, while the smaller part, 33 ft. long by 35 ft. wide, is used for table service. The kitchen in connection with the lunch and



View of the Enlarged Bulkhead as it Appears When Stocked with Produce on Display

dining rooms occupies an area 35 ft. long by 35 ft. wide, located adjacent to the south side of the lunch room.

Terminal Has Capacity of 700 Cars a Day

With these enlarged facilities the Pennsylvania now has capacity for handling approximately 700 cars of perishable produce a day. This traffic is delivered to the terminal in refrigerator cars on car floats at night.



Looking Over a Section of the Pennsylvania's Large Juice-Grape Display Yard Near Jersey City, N. J.

As soon as received, the produce is unloaded on to the piers or the bulkhead over gang planks, the cars remaining on the floats. This operation continues until early morning when the entire floor area of the piers and the bulkhead is loaded with produce on display. The morning at the terminal is occupied by auctions and private sales, and immediately following, the fruits, vegetables and dairy products are removed by trucks by the purchasers. Thus the produce handled at the

Pennsylvania's terminal is received, displayed, sold, and delivered the same day, and by late afternoon the floors of the piers and the bulkhead are practically cleared ready to receive the shipments of the following day.

New Yards Near Jersey City

Assist New York Produce Terminal

The New York produce piers of the Pennsylvania are supplemented by a new produce yard recently completed at Kearny, N. J., between Jersey City and Newark. This yard is divided into four main units; a receiving yard and a classification yard, exclusively for the handling of perishable produce into New York, and a combination receiving and display yard, and a delivery yard, exclusively for the handling of the Pennsylvania's juice grape business.

In the former of these facilities the receiving yard consists of nine tracks with capacities ranging from 61 to 87 cars, the total capacity being about 680 cars. The classification card, consists of 19 short tracks, having a total capacity of 540 cars.

The juice grape facilities at Kearny relieve the New York terminal of the large and highly seasonable juice grape traffic. The receiving and display yard at Kearny consists of six display tracks with a total capacity of 450 cars, alternating pairs of these tracks being served by display platforms. These platforms, which are 1100 ft. long in each case, are frame structures protected by corrugated metal umbrella sheds supported on light structural steel framework.

Delivery Yard

The delivery yard at the produce terminal consists of 13 tracks holding from 30 to 54 cars each, these tracks being grouped in pairs, except in one instance where three tracks are grouped together, and separated by 60-ft. driveways.

All the work on the Pennsylvania's piers and at the produce yard was carried out under the direction of R. S. Stewart, division engineer. The work on the piers, which was done by Ailen N. Spooner & Son, Inc., New York, was carried out under the direct supervision of B. F. Stidfole, Jr., master carpenter, while the work in the produce yard was done by the Crane Contracting Company, Newark, N. J., under the direct supervision of James McCoy, supervisor.

Standardization of Track Scales Improves Service

AS a result of standardizing its track scales and reorganizing its scale department to insure efficient maintenance, supervision and testing, the accuracy of the scales of the Atchinson, Topeka & Santa Fe has been maintained within the tolerance of 0.20 per cent allowed by government inspection for the last 15 years, with but one exception which occurred during 1922 when the switchmen's strike delayed the overhauling of this scale. The inaccuracy of this scale measured 0.21 per cent or 0.01 per cent above that allowed by the government.

The practice of standardizing scales was instituted in 1906 for the purpose of increasing accuracy and cutting maintenance costs. At this time 38-ft. scales of several makes were in service on the system. A four-section 46-ft. scale with 105-lb. I-beams, a floating deck and a type registering weigh-beam was adopted as standard. From 1906 to 1920 a total of 115 scales of this type

were installed. At the time of standardizing, the practice of carrying five extra sets of levers for interchanging during overhauling or for emergency also was adopted, three sets being held at Topeka, Kan., and two at San Bernardino, Cal. The extra levers not only facilitate overhauling but permit the maximum service to be secured from the scales. In overhauling, levers are changed and the old ones are sent to the shop where they are conditioned so that they may be ready for use in replacing levers in another scale due for overhauling. With this method a scale is out of service for only a few days as compared with one or two months under the old system, where the levers were sent to the shop, overhauled and returned to the same scale pit.

Pack In Cup Grease

To further insure better operation and to lessen the necessary attention to scales, the practice of packing all bearing surfaces and knife edges in cup grease was adopted. This has prevented the corroding of vital parts. As a result of these measures the time between overhauls has been extended to as long as 15 years.

The system is divided into two districts for shop work, a scale shop at San Bernardino, Cal., serving the territory west of Albuquerque, N. M., and Belen and another at Topeka serving the remainder of the system. For the purpose of inspection there are nine districts, to each of which, with the exception of two, one inspector is assigned.

The Coast Lines district has four inspectors and the Gulf Lines or eighth district, two. The shop force consists of five men at Topeka, in addition to the four Coast Lines inspectors who also do shop work at San Bernardino.

Three Cars Used

In the testing of scales, three all-metal, roller bearing, 80,500-lb., 7-ft. wheel base test cars are used. An extra set of wheels and bearings for the test cars are carried on hand at Topeka, Kan., which is the headquarters for these cars, and at the end of a trip, the wheels are changed. The replaced wheels and bearings are inspected and adjusted and are then placed under the next car. This practice permits the cars to be in constant use.

One car traverses the main line between Chicago and Albuquerque, another travels west of Albuquerque and the third tests scales on the Panhandle & Santa Fe and the Gulf. Colorado & Santa Fe as well as those at all points south of Arkansas City, Kan. Each car averages three trips over its territory per year and consequently each scale is tested three times a year. After each trip the car is weighed in on a master scale to detect any variation in weight, is equipped with new wheels, resealed and sent out. It is the duty of the district inspector to take the car over his territory and to inspect industrial scales, when requested, as well as company scales.

The Santa Fe is now changing from the 46-ft. floating deck scale to a 50-ft. rigid deck with four sections, each of which has a capacity of 75 tons. The change to the new standard is made when the relocation of an old scale is impossible, or when a new scale is to be installed. Five of this type are now in service and two more are about to be installed.

The scale organization of the Santa Fe is under the supervision of F. C. Maegly, assistant general freight agent.

Short Lines Oppose Per Diem Rules

Present plan said to work inequitably in case of short hauls

WASHINGTON, D. C.

THE final hearing in connection with the Interstate Commerce Commission's investigation of the rules for car-hire settlement, No. 17,801 on its docket, before Director W. P. Bartel and Examiner C. A. Rice of the commission's Bureau of Service, was concluded on March 30 after several thousand pages of testimony had been taken and over 500 exhibits had been introduced at hearings held in various parts of the country during the past year. The investigation was instituted on the commission's own motion after a complaint had been filed by the American Short Line Railroad Association that the code of per diem rules of the American Railway Association, particularly Per Diem Rule 6, is inequitable in its application to non-subscriber short lines, to the extent that it is enforced. The short lines are asking that the rule be abrogated and one adopted under which they may make settlements for the use of cars with the direct connecting line from which they are received at mileage rates, no car hire to be paid on cars handled in switching service.

Per Diem Rule 6 provides that subscriber roads, which includes those operating 97.79 per cent of the mileage and owning 99.81 per cent of the freight cars, shall make settlements with their non-subscriber common carrier connections (other than roads which have been declared industrial common carriers) at the established per diem rate without any free time allowance and without reclaim. The short lines take the position that because of the higher ratio of shippers' and consignees' free time and of interchange time in proportion to the length of haul and the revenue they receive for handling a car, as compared with conditions on the trunk lines, the payment of per diem without reclaim adds unduly to their expenses and is not adequately provided for in the divisions which they receive out of the joint rates. On behalf of the A. R. A. it was stated that the reason for the provision in Rule 6 against payment of reclaims to non-subscribers is to provide an incentive for roads to become subscribers to the Per Diem Rules Agreement and to assume the obligations prescribed by the rules. It was also stated that the per diem rate does not represent the full cost of owning a car.

At the various hearings which have been held since March, 1927, representatives of some 125 short lines have testified regarding their conditions and the effect on them of the per diem system and at the Washington hearing just concluded additional testimony of this nature was introduced, while statements in the nature of general summaries were made by L. S. Cass, vice-president of the American Short Line Railroad Association, and C. W. Crawford, chairman of the general committee of Division II—Transportation, of the A. R. A. Representatives of the various roads that have entered into special local arrangements with connecting short lines also were called upon to explain them. A concrete proposal that paragraph (b) of Per Diem Rule 6 be abrogated was made by Mr. Cass, who suggested that the following be substituted:

Rule of Car Hire Proposed for Non-Subscriber Common Carrier Railroads
Any common carrier by railroad which is a non-subscriber to the Per

Diem Rules of the American Railway Association (other than roads which have been declared industrial common carriers) may make settlement for the use of all foreign freight cars with the direct connecting line from which such cars are received and at the standard mileage rate fixed by the Interstate Commerce Commission and in effect at the time such delivery was made, no car hire to be paid on cars handled in switching service for connecting lines and no reclaim to be received and settlement to be made with the direct connecting line with which foreign freight cars are interchanged at the current demurrage rate (unless otherwise legally provided for), after the following time has elapsed, computing time from the first 7 a. m. after actual placement on the interchange track until returned to the same or another recognized interchange track,

24 hours on cars received empty and returned empty;
72 hours on cars received loaded and returned empty;
72 hours on cars received empty and returned loaded;
144 hours on cars received loaded and returned loaded;

in computing time, Sundays and legal holidays (National, State or Municipal) will be excluded.

Any such common carrier by railroad which is a non-subscriber to the Per Diem Rules of the American Railway Association and which controls interchangeable freight cars (either by ownership, lease or otherwise) when such cars are used by other carriers, to receive as compensation for such use the standard mileage rate fixed by the Interstate Commerce Commission and in effect at the time of such use (unless otherwise legally provided for), said compensation to be paid by the user direct to the owner or controller road upon the basis of the loaded and empty mileage and the mileage to be computed on the basis of distance tables without the elimination of mileage through switching districts and including any mileage made in switching service.

Synopsis of Short Line Contentions

A synopsis of the contentions of the short lines has been prepared by Ireland Hampton, an attorney and transportation specialist, of Fort Worth, Tex., who appeared as a witness for the short line association at the hearing and who submitted an elaborate statistical exhibit making calculations of the amount needed to equalize the condition of the short lines with those of the trunk lines. This was objected to by counsel for the trunk lines on the ground that it contained matter relating to divisions and otherwise not pertinent to the case.

Director Bartel first ruled that it was inadmissible, but later admitted it, with some omissions, at the request of Moultrie Hitt, who appeared as counsel for the short lines, with the understanding that parts not pertinent would be disregarded. An almost complete abstract of Mr. Hampton's synopsis of the case follows:

It will be enlightening to briefly review the fundamental contentions made in this case by the short line association and the counter arguments implied by the evidence of the Class I railroads, as disclosed by the stenographic reports of the hearings. These views may fairly be stated as follows:

1st: Short Line causes of complaint:

(a) That the rigid enforcement of paragraph (b) of Rule 6 of the Car Hire Division of The American Railway Association, forcing non-member short line railroads to pay straight per diem of \$1 per car per day, was inequitable because of the distinctive high ratio of shippers' and consignees' free time, and of interchange time, to the length of haul and time required for actual movement on the rails of short line railroads, when compared with the same elements prevailing for Class I railroads;

(b) That the service being performed by short lines was distinctly supplementary, tributary, auxiliary or complementary to the operations of the Class I railroads and could not in principle be distinguished from the service being performed by terminal roads, which roads were being allowed reclaims to offset free time to shippers and consignees;

(c) That the rates and divisions of rates being allowed to the short lines since the year 1902 were not sufficient to absorb the added burden imposed by per diem charges since that year;

(d) That the rigid enforcement of this rule by the association resulted in the Class I roads being unable to make flexible adjustment of per diem with connecting short lines, in order to meet the peculiar economic demands of each case, and so preserve the efficient continued operation of the tributary, to

the end that the affected Class I carrier might enjoy stimulation of its own net revenues;

(e) That if there was not to be complete flexibility, then that the rule should be changed to a basis which would meet the average prevailing conditions, or to give limited options of action by Class I car owners, but in any case to be guarded by provisions which would penalize abuse of the possession of freight cars by individual short line roads;

(f) That this maladjustment, and the misallocation of per diem burdens, was the material, substantial and proximate cause of a very high percentage of the short line railways being not able to bring their accounts "Expense Account of Transportation" and "Total Operating Expense" into economic relation to "Total Operating Revenue." That an alarming number of the short line railways were in actual financial, and physical, disintegration because of these conditions;

(g) That the short line railways were being economically and efficiently operated, but that the onerous conditions incident to short hauls of freight had not been adequately offset;

(h) That the service in the origin and delivery of freight by short line movements resulted in ton-miles of revenue freight for the Class I roads and long hauls of such volume as to make impairment or breakdown of the short lines a matter of grave concern to the Class I roads; that speedy adjustment was in the last analysis a step for preservation of the welfare of the Class I carriers;

(i) The short lines did not question the per diem charge as lawful compensation to the car owner, but sought to clearly distinguish the much confused "ownership of cars" from the revenue bearing "use of cars" in the actual movement of freight;

(j) That to increase ownership of freight cars by short lines to a density of ownership per mile of road, or density of tons per mile, comparable to that of the long haul roads, was uneconomic because of the consequent increase of capital investment, whereby the capital overhead would wipe out or seriously dilute the theoretical benefits.

2nd: The Class I roads in effect replied:

(a) That the duty to provide cars for the through movement of "tonnage originated" by short lines, or to pay commensurate per diem while foreign cars were on the short lines, was the just burden of the short lines, and that the free time to the short line and its shippers and consignees was a matter between the immediate parties, in which the trunk lines should not be required to participate;

(b) The trunk lines granted, in principle, that the short lines should be permitted to earn a fair return on the investment, but insisted that adjustment through per diem abatements, or reclaims, was not a proper remedy; that the proper remedy was a general readjustment of rate and divisions of through rates.

(c) Further that any disturbance of the prevailing rule would render chaotic the car accounting system in force.

3rd: The effect of the testimony of the short lines was:

(a) That individual effort for adjustment through divisions, though long made, had borne small result, and that the situation was now acute and would become cumulatively grave;

(b) That it was difficult to stimulate the short line revenues without increasing the cost of the through hauls, whereby the economic health of short line industries and communities would be impaired by the general competitive conditions prevailing;

(c) That a high percentage of the total movement was intrastate and subject to diverse control by the several state regulatory bodies;

(d) That such proportion of the adjustment as could be made by the Interstate Commerce Commission would entail endless hearings to investigate the equities and economic necessities of each individual case and would involve delays not to be sustained;

(e) That the short line tonnage, both outbound and inbound, was predominately dependent on continued operation of the short lines and would wholly disappear from the tonnage volume of the nation if the short lines were not sustained.

A study of the evidence given at the various regional hearings discloses a diversity of operating conditions and clash of asserted equities almost as numerous as the short lines involved. There was only one constant factor and that was the distressed conditions of the short lines. Otherwise, the record is confusing rather than illuminative. For this reason the American Short Line Railroad Association requested Mr. Hampton to make a statistical analysis which would present all factors reflecting the average pertinent conditions when applied to the transportation system as a whole. It is this study of which the synopsis is now given.

Part I—Importance of Short Lines as Supplemental Factors in Transportation

(a) The capital investment in the Class II and III railroads is of the total railway investment..... 2.986%

(b) The short line miles are of the total.....	8.422%
(c) Tons per mile "originated" by short lines are of the same for Class I roads.....	90.580%
(d) Total tons "originated" and "other" are of the same for Class I.....	75.220%
(e) The "ton" density of the short lines is of the investment per mile.....	10.400%
(f) The same for Class I roads is.....	23.500%
(g) The short line dollar of capital invested originates or delivers for each ton originated or delivered by a Class I dollar, tons.....	2.1674
(h) The average "United States System Haul" of the Class II and III railroads is in miles.....	22.6
The same for Class I is in miles.....	308.93
(i) The "net revenue" to Class I roads derived from freight originating on or delivered by Class II and III roads results in stimulation of the "Net Income" of the Class I roads.....	19.196%

Summary of Deductions From Part 1

1st: The short line dollar has been discreetly placed.

2nd: Non-operation of the short line railroads would cause much of the tonnage originated or delivered by them to disappear as tonnage moving in the United States. As much of this tonnage can be incorporated in existing train service of the Class I roads, and be economically carried, preservation of the short lines is much more important to the Class I roads than is reflected even by the 19.97 per cent of "Net Income" of the Class I roads which is derived through stimulated "Net Railway Operating Income."

3rd: If it appears that "Net Railway Operating Income" of the Class II and Class III roads, when related to the ton-mile or car-mile factors, and all in turn related to return on the capital invested, does not prove to be comparable to the return being so earned by the Class I roads, then it follows that the short lines are not receiving from the public, or from the Class I roads, allowances sufficient to compensate the peculiar onerous conditions inherent in short-haul traffic. The public interest in the continued efficient operation of the short line railroads is even greater than that of the Class I carriers. These deductions should not be understood to overlook the necessity to encourage efficiency by refusing to reward inefficiency. As to this we find that for the operating year 1925 (the year on which these studies were based) the Class II and Class III railroads gave average movement of freight cars, loaded and empty, 31,466 miles, as compared to 31,159 miles per day on Class I roads, so there was no prevalent abuse of the possession of cars by the short lines.

Part II—Studies of Comparative Relation of "Net Railway Operating Income" to "Investment in Road & Equipment." Also Relating This Factor to the "Ton-Mile" and the "Loaded and Empty" Car Mile Service Performed by the Respective Classified Roads.

1st: The ratio of return on capital invested in Class II and III Roads was 2.3052%

(a) The same for Class I roads was 5.8239%

The amount required to equalize is \$23,890,538; the amount per ton mile is 6.628 mills; per loaded and empty car mile it is 12 cents; per car of revenue freight it is \$3.77. While there has proved to be approximate agreement between adjustment on this basis and adjustment to equalize on a basis of the comparable cost of "Expense Account of Transportation" (amount required per car of revenue freight, \$3.68), adjustment to equalize upon a basis of equalizing the rate of return on the capital investment is not sound in theory because it fails to reflect too many elements of comparative merit.

Part III—A Study So Developed as To Avoid Confusion of Car Ownership With the Use of Cars

To accomplish this a theoretical pooling of all freight cars is set up. Both Class II and III roads and Class I roads are assumed to settle with the pool at \$1 per car per day as consideration for the detention and use of freight cars. Under this set-up we give factors as follows:

For the year 1925 the cars of revenue freight were 55,261,975; total loadings and unloadings 110,523,950; the total number of freight cars in service 2,399,033. The total charge by the pool against all carriers for the year is \$875,647,045; the total shippers' and consignees' free time (potential 2 days per loading and unloading) was 25.22% of the total, or \$221,047,900. This left \$654,599,145 to be allocated to the time within which the roads had control of the cars for movement; this per car of revenue freight is \$11.18; the total per diem (including shippers' and consignees' free time) is, per car of revenue freight, \$15.18. The trip days per load were 15.18; the load trips per car per year were, averaged, 23,035. The loaded and empty car miles per loaded car trip were 473. The "United States System Movement" on Class II and III roads was 199,260,859 car-miles. This mileage, divided by the total carloads of revenue freight (55,261,975) yields miles

per car to be allocated to Class II and III roads, 3.65. This is in per cent of the comparable figure of the Class I roads (473 miles) 0.766 per cent. If adjustment of per diem for the short lines were to be made by the pool, then the total debt item for the short lines for the year would be \$6,637,455. For the year 1925 the short lines furnished 41,799 freight cars for which the assumed pool must credit them per diem \$15,525,635; they paid debit balance account "Hire of Freight Cars" \$5,243,185, and net debit of "Paid Car Repairs" (Account 2224) \$6,087,631, making a total of \$26,856,451. Deduct the produced equitable allocation of charge for detention and use of \$6,637,455, and also deduct \$3,092,019, Class II and III credit by car hire balance, and we find that the actual cost was in excess of the produced allocation \$2.70 per car of revenue freight (6,332,496) of the short line railways. (Compare this with the \$3.77 per car needed to equalize and basis of the rate of return on the capital investment.)

The foregoing method of allocation does obviously and automatically throw shippers' and consignees' free time into adjustment with the element of the time available for actual movement by the respective classified carriers. The average movement per car day by the Class I and Class II and III roads is practically the same, which shows absence of abuse of possession of cars by the short lines. These deductions do not take into account any adjustment for the short line distinctively high ratio of switching, billing and interchange costs per car when related to their rail movement per car. To do so would not be germane to this inquiry.

Relating to Net Debits Account of Ownership and Use of Freight Cars by the Short Lines as Disclosed by Their Reports for the Year 1925 to Their "Expense Account of Transportation" and "Total Operating Expenses," as Reported for the Same Year

The actual short line net debits account freight cars and credit for cars furnished the assumed system pool were \$23,764,432; their "Expense Account of Transportation" was \$39,408,650; the stated \$23,764,432 was of the expense account of transportation 60.3%. Charging the Class I roads with the remainder of pool debits we have \$851,882,613; their "Expense Account of Transportation" was \$2,128,471,218; the ratio of the accounts is 40.2%. The stated \$23,764,432 (freight car overhead of short lines) is of their "Net Railway Operating Income" 151%; for the Class I roads the comparable ratio is 76.8%. From this appears the comparable effect of the rigid enforcement of per diem charges against short haul and long haul railroads.

The "Total Operating Expense" per loaded and empty freight car-mile of the Class II and III roads is 48.4 cents; the same for Class I roads is 17.3 cents. The short line excess per car-mile is 31.1 cents. To adjust relative allowances per car-mile of service to conform to the comparable costs to perform that service would require \$9.78 per car of revenue freight handled by the short lines in 1925. From this will vividly appear the peculiar onerous conditions which are inherent factors of short haul traffic and this study is produced for that purpose only.

The adjustment of per diem burdens, if to be equitably adjusted, should be based on the factor of comparable "Expense Account of Transportation," for that is the account in which per diem charges are reflected. The "Expense Account of Transportation" per loaded and empty freight car mile for the Classes II and III roads was 19.823 cents; the same for the Class I roads was 8.131 cents. The excess for the short lines was 11.692 cents; the excess was per car of revenue freight handled by the short lines, \$3.68.

One view has been injected into the record in this case which is interesting if not germane. It is that since 1902 (the year of establishing the per diem system) the increased cost for cars used by short lines has probably been offset by rate increases, or by more liberal divisions of through rates, and that even if this be not true, then that adjustment should be made by the rate and division increases. The answer is that if the adjustment prior to 1902 was on an equitable basis, these studies disclose that the increased per diem has not been compensated in any manner since 1902. As to just what degree of consideration has been actually given at any time to the peculiar incident onerous factors of short hauls occurring on Class II and III roads can be accurately known as of 1925. The Class II and Class III revenue per ton-mile was 2.961 cents; same for Class I, 1.097 cents; this as reflected in the Class II and III freight car-miles loaded and empty was 33.7049 cents. The above proposed adjustment based on equalizing cost on basis of comparable "Expense Account of Transportation" per loaded and empty freight car mile of the short lines is 11.692 cents.

Summary of Deductions

The Class II and III roads are shown to be discreetly located by their density of tons originated and delivered; they have been economically financed; they are showing velocity of movement of cars a little higher than that of the Class I roads, which indicates that they are being efficiently operated and that they have not abused their possession of the cars of other roads; they are not receiving allowances sufficient to cover operating expenses and interest on the bonded indebtedness of an assumed system to embrace them all. This being the "average condition" many of these short lines are obviously being financially and physically disintegrated.

Conclusion

If there is to be adjustment of charges incident to the use of freight cars, there are only four bases for which economic justification may be found. They are, as of the year 1925, recapitulated and the dollars for each stated:

1st: Adjustment to afford a fair return on the capital investment	\$23,890,538
(This per car of revenue freight \$3.77)	
2nd: Adjustment to conform to equitable ratio of detention and use	\$17,126,977
(Same per car of revenue freight \$2.70)	
3rd: Adjustment based on equalization of "Expense Account of Transportation" per loaded and empty freight car mile	\$23,297,696
(Same per car revenue freight \$3.68)	
4th: Adjustment to equalize "Total Operating Expense" per loaded and empty freight car mile	\$61,970,120
(Same per car revenue freight \$9.78)	

The American Short Line Railroad Association, through its vice-president, L. S. Cass, made concrete proposal for abrogation of Paragraph (b) of Rule 6 of the Code of Per Diem Rules of the American Railway Association, and to substantiate therefor the following: [Proposed Rule Quoted Above.]

It is to be noted that this would result in less concession to the short lines than the sum per car stated in bases 1st and 3rd above.

Relating to the Facts Developed To Procedural Action

1st: As to many, if not a majority, of the short line railroads, the time of adjustment will prove more material than the exact degree of adjustment.

2nd: The individual adjustment of divisions between Class II and III roads and Class I roads, or general rate increases to compensate the short line roads, would be a protracted procedure and would fail to rescue those roads most urgently needing adjustment.

3rd: Revision of the car hire Rule 6, Paragraph (b), either voluntarily or through observance of an appropriate order by the Interstate Commerce Commission, can be promptly effected.

4th: A flexible rule, such as the rule proposed by Mr. Cass, would enable Class I roads to concede to, or withdraw from, their individual short line connections per diem allowances just to the degree that and when the individual Class I road might deem its own welfare to be stimulated by such action.

5th: The present rigid per diem rule is pervasive of the best interest of many (or all) of the Class I roads having numerous independent short line tributary roads, and is rapidly depleting the invested capital of many of the short lines.

6th: A prevailing financial mortality, and possible non-operation, of any considerable number of the short lines would diminish the volume of traffic of the Class I lines to such a degree as would result in ruinous reduction of their "Net Income" accounts. (At this point it is well to recall that in 1925 the Class I roads had "Net Income" derived from short line interchanged tonnage equal to 19.196% of their "Net Income").

7th: Any accounting system should yield to the economic expediency of the operation out of which the accounts arise, and the individual connected Class I and Class II and III roads could work out individual peculiarly suited systems without disturbing the prevailing system as between Class I carriers.

Position of the A. R. A.

T. W. Demarest, general superintendent of motive power of the Pennsylvania, testified that there is no factor in the per diem rate to cover the earning value of a car or to retire the investment and that it is not therefore full compensation for the use of a car and does not cover what it would cost a car user to buy cars of its own to handle its traffic. He also pointed out that the rate is based on 365 days a year, whereas a car must earn its revenue in the days in which it is in service, an average of 296 days a year.

Mr. Crawford presented a statement, including many exhibits, some of them compiled in answer to requests made at the earlier hearings. One exhibit showed that among the subscribers to the Car Service and Per Diem Agreement there are 301 roads less than 100 miles long and independently operated (not subsidiaries of trunk lines) operating 11,912 miles and owning 42,627 freight cars. In reply to some testimony by short line representatives that they had tried to subscribe to the agreement and had been refused, Mr. Crawford submitted a list showing that since 1914 only 18 roads had made application to join the agreement whose applications had been rejected, whereas during the same period the applications of 257 roads had been approved. The list showed that 11 of the applications had been held in abeyance pending final decision by the Interstate Commerce Commission in the Matter of Car Hire Settlement With Industrial Railways and one had been rejected pending determination of its status as a common carrier while two had been rejected because of being in arrears for car hire.

Mr. Crawford submitted a summary showing the number of roads which subscribe to the Per Diem Rules Agreement; the number of roads which do not subscribe but make settlement at the per diem rate without free time or reclaim; and the number of non-subscribers, separated as between those industrially owned and those not industrially owned, who settle on a different basis than prescribed in Per Diem Rule 6, as follows:

Summary of Steam Roads, Miles Operated, Freight Cars Owned and Present Method of Car Hire Settlement

Method of Settlement for Car Hire	No. of Roads	%	Miles Operated	%	Freight Cars Owned	%
Subscribers to Per Diem Agreement	*1,347	77.81	306,323	97.79	2,620,992	99.81
<i>Non-Subscribers:</i>						
Per Diem without free time or reclaim.....	196	11.32	3,813	1.21	1,727	.07
<i>Roads not Industrially Owned:</i>						
Per Diem with free time	18	1.04	266	.08	131	.01
Demurrage with 2 days free	18	1.04	308	.10	86	
Plant facility basis.....	5	.29	95	.03	8	
<i>Roads Industrially Owned:</i>						
Per Diem with free time	29	1.68	830	.27	667	.11
Demurrage with 2 days free	34	1.97	484	.15	789	
Birmingham Southern Rules	41	2.36	743	.24	1,081	
Plant facility basis.....	43	2.49	403	.13	405	
Totals	1,731	100%	313,265	100%	2,625,886	100%

* Includes 472 roads and 875 subsidiary roads who operate under the agreement of the parent company.

Mr. Crawford also showed that:

- 62 Electric roads subscribe to the per diem agreement;
- 56 Electric roads make settlement at the per diem rate, without free time or reclaim;
- 8 Electric roads make settlement at the per diem rate, with free time allowed;
- 23 Electric roads make settlement at the demurrage rate with 2 days' free time allowed;
- 20 Electric roads are treated as agent of shipper or consignee and demurrage is charged against industries and retained by the direct connections of the electric lines.

Some extracts from the more general parts of Mr. Crawford's statement are as follows:

The rule does not provide for a uniform method of settlement with roads "which have been declared industrial common carriers." The reason was because the Interstate Commerce Commission in several decisions condemned the per diem and reclaim plan of settlement with industrial common carrier switching roads and established in lieu thereof the so-called Birmingham Southern Rules. In other decisions it also prescribed the Birmingham Southern method of settlement for industrial roads which receive more or less of a road haul and participate in joint through rates. On account of these decisions it has not been possible to prescribe a uniform rule to cover settlements with industrially owned or controlled non-subscriber roads. The corrected exhibit shows separately set-

tlement with industrially owned or controlled steam railroads, and is summarized as follows:

Basis of Settlement	Roads Industrially Owned or Controlled	Roads Not Industrially Owned or Controlled	Total
Per diem without free time or reclaim	52	144	196
Per diem with free time or reclaim	29	18	47
Birmingham Southern Rules	41	—	41
Demurrage Rules	34	18	52
Plant Facility	43	5	48
Total number roads reported	199	185	384

It is to be noted that out of a total of 185 roads not industrially owned or controlled, 144, or nearly 80 per cent, make settlement in accordance with Per Diem Rule 6. Having in mind that settlement with 199 industrially owned or controlled roads is not contrary to Rule 6, the settlements which are contrary to the rule apply only in the case of 41 roads, which is only 10 per cent of the total non-subscriber roads reported.

Allowance of Switching

Reclaims to Non-Subscribers

Complaint was made by some of the short lines against that portion of Per Diem Rule 6 which prevents the payment of a switching reclaim to a non-subscriber road. The reason for this provision is for the purpose of bringing about greater uniformity in the handling and settlement for the use of freight cars. It provides an incentive for roads to become subscribers to the Per Diem Rules Agreement. By subscribing to the per diem rules a road is required to assume the obligation of paying per diem to the car owner, making correct interchange reports and keeping a proper account of cars. When it assumes the obligations prescribed by the rules, it has the advantage of receiving a reclaim on the cars which it handles in switching service for the account of a road haul carrier. The conditions under which the reclaim can be obtained are no different from the conditions imposed on other roads.

A road cannot reasonably expect to receive the advantages of the rules without assuming the obligations and if roads were permitted to receive switching reclaims without assuming these obligations, there would doubtless be a wholesale withdrawal from the Per Diem Rules Agreement, which would only result in confusion and improper practices and impose upon a few roads the burden and obligation of maintaining and applying the rules which are necessary if all freight cars are handled as they should be.

Apparently, one of the reasons why the commission condemned the reclaim plan of settlement with industrial switching roads was because under the old method of determining reclaim allowances, the switching road would make a profit out of the reclaim, but that part of the reclaim rules which caused criticism by the commission has been corrected by the American Railway Association in the adoption of a revised Code of Switching Reclaim Rules, which are made a part of Per Diem Rule 5. These rules are based upon the fundamental principle that in order to receive the reclaim, switching line must pay the per diem direct to the car owner in accordance with the established rules. Obviously, if a road is entitled to reclaim without paying per diem to the car owner, such an arrangement would lead to all kinds of abuses and result in just what the commission condemned in the case of the industrial switching roads.

Mileage System of Car Hire

Some of the short lines advocated a return to the mileage system of car hire. Mr. Hale in his testimony condemned this method. He also referred to some of the evils in the plan and supported the statement made in my previous testimony that the mileage system proved to be unsatisfactory because there was no check against the accounts as rendered by foreign lines and no incentive to handle and return foreign cars promptly, nor was the compensation uniform or sufficient to reimburse the car owner for the investment in and cost of maintaining cars.

It is true that mileage is paid for the use of privately owned cars and there are a number of reasons why such cars should not be settled for on a per diem basis. One of the important reasons is the difficulty to establish at all times when a private car is or is not in railroad service.

It would be impossible to establish a mileage plan of settlement for cars of railroad ownership which would uniformly and sufficiently reimburse car owners for the cost of owning the car. Furthermore, the mileage plan does not take into consideration all of the time the car is in use. Cars could be held for prospective loading indefinitely without any payment for car hire. Such a method would also create serious difficulties in proper methods of car distribution. There could not, without

serious difficulty, be as many different rates of payment as there are owners or users with varying ability to efficiently or uniformly handle cars, so that the car owner would in all cases be sufficiently reimbursed for the cost of ownership. The miles per car per day would necessarily have to be the controlling factor, and this varies so greatly on different classes of equipment, commodities, and the kind of service performed by each road, that a return to the mileage system, even in the case of short line railroads, would be attended by even greater evils than existed under the old plan which was in effect prior to 1902.

Incentive Provided by Per Diem

Rules for Prompt Handling of Cars

Some of the short lines which were heard complained because the payment of per diem put them to additional expense in speeding up the movement of cars, thus clearly indicating that if they were permitted to use cars free or were given a free time allowance, they could slow down the movement and decrease their expense. One of the reasons for the inauguration of the per diem system was to provide an incentive to keep cars moving.

Mention was also made of the possibility of switching roads operating under the per diem and reclaim rules slowing down the movement in order to get an increase in the switching reclaim allowance, which has not been found to be true in any case. On the contrary, the facts are that the checks which have been made under the supervision of the association show a continual reduction in the number of days required to handle cars in switching service; for example, on 89 subscriber roads, whose records have been checked several times in the last six years, the following is comparative performance between the first check that was made after the period of federal control, and the last check.

- 1st—These 89 roads switch approximately a total of 2,856,600 cars per annum.
- 2nd—The last check showed that these 89 roads had reduced the number of days required to handle these cars a total of 2,211,492 days.
- 3rd—The average number of days actually required as indicated by the checks showed a reduction of .77 days per car.

This saving of over two million car days represents enough cars to cover two weeks' loading requirements during the period of peak loading.

An allowance of free time to the several hundred short lines would not only seriously interfere with the efficient use and impartial distribution of equipment, but would also tend to break down the fundamental principles upon which the present per diem system has been constructed.

Proposal to Increase Switching Charges to Do Away With Per Diem Reclaims

Mr. Hale made the statement that switching rates in some cases had been increased to do away with per diem reclaims. The facts are that in circularizing all the subscribers to the Per Diem Rules Agreement in the United States, we did not find any place where this was done.

The possibility of increasing switching charges and requiring the switching line to pay per diem direct to the car owner, without reclaim against the road for which the service is performed, has been the subject of discussion on a number of occasions with traffic representatives, and all of them have expressed the opinion that this is impracticable. The reclaims under the present rules vary from year to year, depending upon the length of time required by each road to handle cars in terminal switching service. If the switching charges of individual lines were changed from time to time to take care of the car hire expense, it would mean that the charges on each road would have to be changed just as frequently as the reclaim period is changed. The amount that the switching rate would have to be increased could only be determined by a check of the car records to ascertain the actual average time required by each road to switch cars.

Settlement by Industrial Railroads

For competitive reasons, switching rates are generally uniform in each terminal switching district, whereas the reclaim is not uniform on all roads. Another objection is that where switching charges are not absorbed by road haul carriers, it would mean an increase in the payment made by shippers or consignees. In other cases, switching charges are only partially absorbed by the road haul carrier; shippers or consignees would have to assume that portion of the switching charge which is not absorbed. If, therefore, switching charges were adjusted to include per diem, it would, in many cases, mean an increase in the transportation expense to be paid by the shipper or consignee.

The question of switching reclaims allowed industrial roads

has been before the American Railway Association in one form or another almost continuously for the past sixteen years, or since the commission instituted the First Industrial Railroad cases. Almost every conceivable method of car hire settlement with this class of roads has been suggested and considered very carefully by the committees.

Among the plans to which consideration has been given are:

1. To abolish the reclaim entirely by increasing switching charges by an amount sufficient to cover the per diem expense involved while cars are being switched for road haul carriers. For reasons I have already stated, this plan is impracticable and was rejected.

2. To provide a flat free time allowance and charge per diem on cars held in excess of the free time allowed, and

3. The Birmingham Southern rules, which represent a modified demurrage plan of settlement.

For the reasons which have already been stated, both of these plans were rejected.

4. Actual plan of reclaim under which settlement is made monthly and reclaim allowed at the actual number of days required on round-trip cars and an arbitrary on diverted and pick-up cars. This plan was rejected because it would enable switching roads to use cars in their own local service and include the detention while in such service in the reclaim. It is impracticable to determine for each month the actual per diem that accrues on cars handled in terminal switching service without checking each individual car and without going to the switching road's records to determine the number of days which those cars were used in local, interplant or intra-terminal service. In most cases, the switching road connects with two or more road haul carriers, and cars received from one road are returned to another, which makes it difficult to account for the proper per diem that should be reclaimed against the in and outbound road haul carrier under an actual plan of settlement.

Industrial switching roads perform various classes of switching service. It is conceded that the switching charge which they receive for performing terminal switching service for road haul carriers is not sufficiently high for them to pay per diem without a reclaim. It is also true that on cars which these roads use in their own local service or in intraterminal switching service, they should pay per diem at the established rate, without reclaim, and any plan of settlement under which a road is permitted to use cars without charge for these services is fundamentally wrong.

After giving very careful consideration to all of the plans that have ever been suggested, the Committees of the American Railway Association have reached the unanimous conclusion that the best method of settlement that has been devised up to the present time, as to all classes of carriers, is the per diem and reclaim rules. This view was concurred in by a number of the industrial railroads that have been heard in this case.

The commission criticized the previous per diem and reclaim method of settlement with the industrially-owned switching railroads. As a result of that criticism, the American Railway Association decided that these roads should not be permitted to execute the Per Diem and Car Service Agreement unless the reclaims which they receive are determined by a periodical check of the records in accordance with the rules of the association. There are, therefore, no exceptions to the A.R.A. rules so far as these industrial switching roads are concerned. If, in the light of actual experience, the industrial roads which now settle in accordance with the Birmingham Southern Rules, are required or permitted by the commission to settle in accordance with the per diem rules as a result of this investigation, their reclaims should be determined in accordance with the A.R.A. rules under proper supervision and without any exceptions.

Payments for Car Hire Under Birmingham Southern Rules

An examination has been made of the data filed with the commission by those roads for which the commission prescribed the so-called Birmingham Southern Rules. This shows that during the calendar year 1925, these 17 roads paid \$36,904 for the use and detention of foreign cars on their lines. It also shows that the per diem which accrued during the same period amounted to \$1,271,333. Had they been operating under the per diem and reclaim plan of settlement, these roads would have received back in the shape of reclaim, under Rule 5, \$697,702, and they would have assumed a net per diem expense of \$573,631. The roads shown on the statement, therefore, benefited by the operation of the Birmingham Southern Rules as compared with the per diem rules to the extent of \$536,727 for the year. The Birmingham Southern Rules have been in operation on these roads approximately four years. Using 1925 as an average, these 17 railroads have benefited to the extent of more than \$2,000,000 in the cost of car hire alone, to say nothing of

relieving them of the responsibility of owning any equipment with which to perform their own local service.

Departures From Per Diem

Rules Between Subscribers

We were requested to furnish a statement of departures, as between subscribers, from the per diem and reclaim rules. In order to determine the practices in effect upon and between various subscribers to the rules, a questionnaire was prepared and forwarded to each subscriber in A.R.A. Circular No. 2644. It may be stated that replies were received from all subscribers to the Per Diem Agreement in the United States and only 59 railroads reported the arrangements as shown on the statement. Many of the answers in this statement deal with situations which are not departures from the rules. This is true with respect to the arrangements reported under Per Diem Rule 5 and the Code of Switching Reclaim Rules, because these rules are "subject to such changes as may be required to meet local conditions." It is also true with respect to the per diem arrangements between system lines and those reported under operating agreements.

Payment for the Use of Cars of Non-Subscribers

By reason of the decision of the Commission in 78 I.C.C. 475, five railroads do not pay per diem for the use or detention of foreign cars on their lines but receive per diem on their own cars while they are used or detained on other lines.

Rules 1 to 5 of the Code of Car Service Rules are subject to the Car Service and Per Diem Agreement. These rules, in general, cover the matter of the handling and use of freight cars.

The roads which I have listed, and which receive per diem on their own cars while paying no per diem, or practically no per diem, on the cars of other roads, are not subscribers to the car service rules. Therefore, the trunk lines, having these cars in their possession and paying regular per diem to the owners thereof, have the alternative of either voluntarily handling them under car service rules, although the road owning them does not subscribe to and is not obligated to observe those rules, or handling them in accordance with owner's instructions, in the same manner as privately owned cars are handled. The cars of these roads, therefore, appear to have the status of private cars, so far as use and movement are concerned, and per diem cars, as far as the obligation of the trunk lines to pay for them is concerned.

Several of the short lines that were heard in this case and who own freight cars adapted for interchange desire to receive per diem for the use of their cars on foreign roads without becoming subscribers to the Per Diem Rules Agreement. Other roads were heard who had subscribed to get per diem on their cars but announced they would withdraw from the agreement if they can collect per diem without being a subscriber. There is nothing in the Code of Per Diem Rules which covers this question. There is, however, a standing resolution of the American Railway Association which reads as follows:

"Whereas, there are a number of roads owning freight equipment which are not parties to the Per Diem Rules Agreement and therefore not subject to the provisions thereof, and

"Whereas, such roads are therefore not entitled to receive per diem for the use of their equipment by subscriber roads,

"Be It Resolved, That the American Railway Association recommends that subscriber roads pay to non-subscriber roads for the use of their freight cars the same mileage rates as paid for the use of cars of private ownership of similar class."

The recommendation contained in this resolution, so far as we know, was unanimously followed until the commission gave its decision in 78 I.C.C. 475.

Advantages of Present Plan

The problem of evolving the most economical and efficient method of handling more than two and one-half millions of freight cars that move freely over 300,000 miles of railroad is one of great magnitude and complexity. The public interest requires that the rules be harmonious and free from conflict. There must be standard rules if law and order is to be maintained in the handling of cars. Up to the present time, the rules have been provided by the American Railway Association. The entire body of railroad equipment is a part of practically one system. Freight cars move freely from one road to another, and must therefore be handled under a system of rules which are uniform and free from any conflict. The rules must be fair to both owners and users. They should require correct and simplified car accounting. The rules also provide an incentive for the prompt movement of cars. The large percentage of cars on owner's rails, which has obtained almost continuously during the past few years, is one of the direct results of the present rules. Railroads were thus able to meet the de-

mands of shippers, and cars were available for the traffic for which they were built. The association has made a continuous effort to have all roads that are eligible subscribe to the Car Service and Per Diem Agreement, and to do this, it was necessary that the association provide an incentive for all roads to join the agreement. The fact that practically all railroads in the United States which own interchangeable freight car equipment have subscribed to the agreement is proof that there has been an incentive for them to join. On the other hand, if a road which owns interchangeable freight cars is permitted to receive per diem for the use of its cars by other railroads, without assuming the obligation of joining the Per Diem Agreement, not only those roads which announced at the hearings that they would withdraw from the agreement will actually withdraw but a great many others who did not appear at the hearings will also doubtless withdraw from the agreement. The commission cannot very well say that certain roads are entitled to receive per diem for the use of their cars by other roads without extending this privilege to all roads similarly situated, and even if the privilege were confined to industrially owned or controlled short line roads, there are now 45 industrially owned or controlled short lines which are subscribers to the Car Service and Per Diem Agreement and which own approximately 30,000 freight cars which are adapted for and used in interchange with other roads.

There are quite a number of so-called industrial roads which are treated by their direct connections as plant facilities. Many of them are not shown in the List of Common Carriers published by the Interstate Commerce Commission. They may or may not be common carriers. One of the requirements for admission to the Car Service and Per Diem Agreement is that a road must be a common carrier. If there is any doubt in the matter, it is not admitted to the agreement until its status is finally determined. If one of these roads is not a common carrier and owns cars which are interchanged with other railroads, those cars should be handled and settled for precisely the same as if they were privately owned freight cars.

As a subscriber, a road is entitled to earn per diem on its cars while on foreign lines. It is also obligated to make separate reports, keep separate records and make separate settlements with the owners of the freight cars which it uses or detains on its own line. A non-subscriber common carrier is in the same position as a subscriber common carrier with respect to being able to obtain for the use of its cars the regular per diem rate, and the condition is no different from the condition imposed on all other common carriers. If the obligation is placed on a road to subscribe to the Per Diem Agreement, such an obligation is not unreasonable since the same conditions for obtaining per diem payments, keeping correct car records, making interchange reports, etc., are imposed on all other carriers, and no good reason appears why the burden thereof, in so far as cars of non-subscribers are concerned, should be imposed upon another carrier in addition to the latter's own obligations. However, if a non-subscriber finds it more economical from an accounting standpoint, to accept compensation at the established mileage rates and prefers to do that rather than assume the obligations which is the condition of obtaining the regular per diem rate, it should be left to exercise its option in that respect.

Uniformity being essential in the method of interchange, handling and settlement for the use of freight cars, the following principles must govern:

1. That such cars subject to the per diem method of settlement are adapted for interchange in accordance with the Interchange Rules of the Mechanical Division.
2. Such cars are suitable and available for general service while on the rails of other lines.
3. That the owner of such cars is a common carrier and not a plant facility.
4. That the owning road, if it expects to receive settlement in accordance with the per diem rules for the use of its cars, should be required to pay per diem in accordance with the rules for the use or detention of foreign cars while on its line.
5. That the cars will be subject to the car service and per diem rules with respect to interchange, use, settlement and accounting.
6. That the owner shall comply with the Interchange Rules of the Mechanical Division and assume responsibility under those rules for repairs and for cars destroyed on its rails.

These principles and the reasons therefor lead to but one conclusion; namely, that as a prerequisite to the right to collect per diem for the use of its cars by another railroad a road should be required to execute the Car Service and Per Diem Agreement.

A New Ally of Passenger Trains



Colored Electric Sign Erected by the Northwestern Pacific at Eureka, Cal.

SINCE the war the motor vehicle has played an important part in the furnishing of convenient, flexible transportation; and in many cases this service has worked to the decided disadvantage of the railroads, taking both passenger and freight business away from them, and in some instances necessitating reductions in service. Railway officers, looking upon motorized transportation as a distinct competitor, have seized every opportunity to counteract this encroachment, but this has not been accomplished to any great extent.

Within the past few years, however, one phase of motor transportation has been developed that has proved to be a direct ally to the railroads, and one that is assisting the railroads to regain some of the patronage lost because of the use by commercial travelers and tourists traveling overland of their own or company-owned automobiles. This ally is the Drivurself or "rent-a-car" system, which merchandises automobiles by the mile instead of by units. Within three years, a number of companies have opened stations operating on this basis in nearly every village and city throughout the country.

The first concerted effort to take advantage of the public service to be rendered by such a plan, operated on a nation-wide basis, was made by John Hertz, who conceived the idea of a system of car-rental stations that would cover the United States and Canada, supplying modern, standard equipment at a reasonable charge per mile. The first two years of his active participation in such a venture was spent in the establishment of model stations in several of the larger cities. This eventually developed into an expansion program and today, although the organization is still in its infancy, Hertz Drivurself stations are operating in more than 300 representative cities of the United States and Canada.

Developing the Market

Executives of these stations found themselves faced with the necessity of exploiting every avenue of revenue, as is usual in every new business venture. They noted the decline in railway passenger traffic and realized that a great part of this was due to the fact that both the business and pleasure public were utilizing their own or company-owned cars in overland travel in order that they might have their use at destination. Naturally their first interest was a selfish one—that of securing the motor business at destination of those business men

"Drivurself" service is helping railways to regain passenger traffic lost to private automobile

By Charles W. Litsey

Vice-President and General Manager, Hertz Drivurself Stations, Chicago.

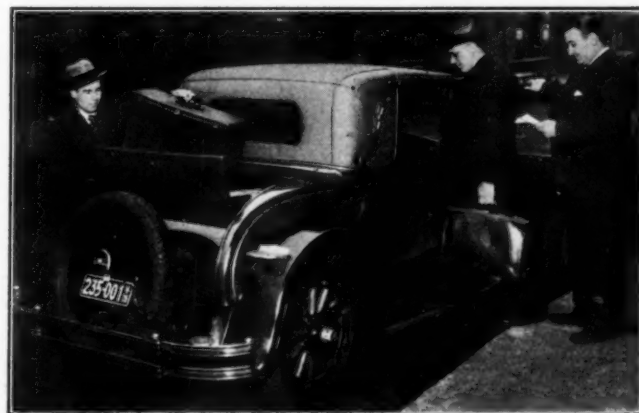
and pleasure-seekers who were already using the railroads but found need of a car upon arrival. This played an important part in the establishment of new Drivurself stations, particular attention being paid to strategic railroad centers.

However, the next most important interest of this organization was to educate that part of the public, which during the past few years has abandoned the railroad for the automobile, to the fact that they can travel faster, more conveniently, more cheaply, and more comfortably by train, and still enjoy the use of a private car after the overland trip. The advantages of such co-operation can readily be seen by railroad officers. At the present time the possibilities for increasing revenue of both the railroads and the "rent-a-car" organization seem to be equally divided between the commercial traveler and the pleasure seeker.

A Million Customers

One of the first plans carried out in an effort to develop co-operation was the issuance of travelers' courtesy cards, a form of identification placed in the hands of responsible men and women upon personal request only. This card, when presented at any of the stations of this company throughout the country, relieves the holder of further identifications and also of the necessity of making the customary deposit before securing the car. Today the total number of cards in the hands of the traveling public has mounted to nearly 1,000,000. Slightly more than one-half of these are carried by traveling salesmen, the rest by other business men and women who find traveling necessary. Each one carrying such a card is a potential user of the railroads and Drivurself service.

In a still further effort to enlarge upon the scope of their co-operation with the railways, the Drivurself officers have recently, after an extended survey, placed



The User of the Drivurself Car Enjoys All the Advantages of His Own Car Without the Tedious Drive Across Country

in effect new low commercial rates intended particularly for companies employing travelers in large number. These new rates are the lowest that have ever been offered in the history of the business and apply whether the service is used wholly within one town or is distributed throughout the country. Although the use of the rented automobile in the field of commercial transportation is still in the embryonic stage, the railroad-drivurself combination, coupled with the establishment of the new commercial rates, has convinced executives of hundreds of national organizations of the soundness of the plan, and the service is now being used daily by these firms. It is a known fact that it is actually cheaper for a salesman to use a train between cities and rent a car at destinations than it is to drive overland between points of call.

To the pleasure seeker the combination answers the question which has been an irksome one for years. Many desire to spend their vacations at points a considerable distance from their homes and find they cannot cover the territory by automobile within the time allotted. Others with cars desire to increase the radius of their vacation tours but find it impossible because of time lost by overland travel. The new combination answers both of these problems, and through the use of the railroads on the overland trip, new fields of recreation are opened to many who heretofore have been unable to reach them.

Railroad officers have become particularly interested inasmuch as long rail trips are being fostered. Every new Drivurself station established broadens the field which a traveler may cover from a railroad point and enables him to cover more territory in a given time and, through stop-over privileges, to visit more points of interest. Railway passenger officers are finding it of distinct value to be able to point out the availability of this national organization, both in their advertising and in personal talks with those planning long vacation trips.

One of the first railroads to realize the possibilities of the combination was the Southern Pacific. The Hertz organization operates stations in practically every well-known tourist haunt on the Pacific coast and each year prints a booklet descriptive of the many beauty spots for which it is famous, pointing out that these can be reached through the combination of the railroad and the Drivurself service. Upon request thousands of these folders were sent to the eastern passenger agents of the Southern Pacific, where they found their way into the hands of tourists considering trips to the coast, who were at the time undecided whether to take their own cars or to travel by train. These folders are also sent to all eastern officers of the Hertz stations, distributed to all station managers, and displayed in conspicuous places about each station, and eventually find their way to many people who are planning their vacations. In many instances, casual customers of the stations, who have already planned trips, which included the use of their own cars, have been sold by the folders, plus a talk with the stations manager on the railroad-Drivurself combination; with the result that the railways have secured the long trip revenue, and the Drivurself service, the revenue from car rental at destination. Such incidents leading to a high revenue for both transportation agencies are not in the least uncommon, and telegrams asking for reservation of cars for periods ranging from one to eight or more weeks have become an every-day occurrence in the life of the Hertz station manager.

The Northwestern Pacific, serving the territory adjacent to and north of San Francisco, in an attempt

to encourage the combination since, displayed an attractive electric sign opposite the ticket office at Eureka, Calif. Eureka is an important junction point and is the buying center for the surrounding territory extending over a hundred miles north and fifty miles east and south. This sign has been the means of educating many sales representatives to the convenience of using the trains to and from the city and Drivurself service at the outlying towns, instead of suffering the dead mileage cost involved in driving their own cars.

Those railroad officers who have already taken an active interest in promoting the combination predict that the time is not far away when railroads as a whole will recognize the possibilities of this new arm of transportation as a decided asset to their business. This has already been indicated by the increasing interest evidenced by many railroad officers, and it is not too visionary to predict that the day will soon come when Drivurself service will hold a distinct place in the selling arguments of the railroad passenger or tourist agents.

Law Points in Lake Cargo Case

COUNSEL for the coal operators of the "southern" district have filed in the district court for the southern district of West Virginia a memorandum of argument in support of their application for an injunction against the Interstate Commerce Commission's latest order in the lake cargo coal rate case, in which the commission declined to allow the southern roads to reduce their rates. The memorandum sets out what they assert are new constructions of the interstate commerce act, made by the commission in this case, which have not heretofore been passed upon by the courts, as follows:

1. The Commission holds that it has the power to condemn as unjust and unreasonable a rate sought to be reduced by one carrier because it is not, in the opinion of the Commission, properly related to a rate of another carrier serving competing shippers and without finding that the proposed reduced rate is unjustly discriminatory or unduly prejudicial.

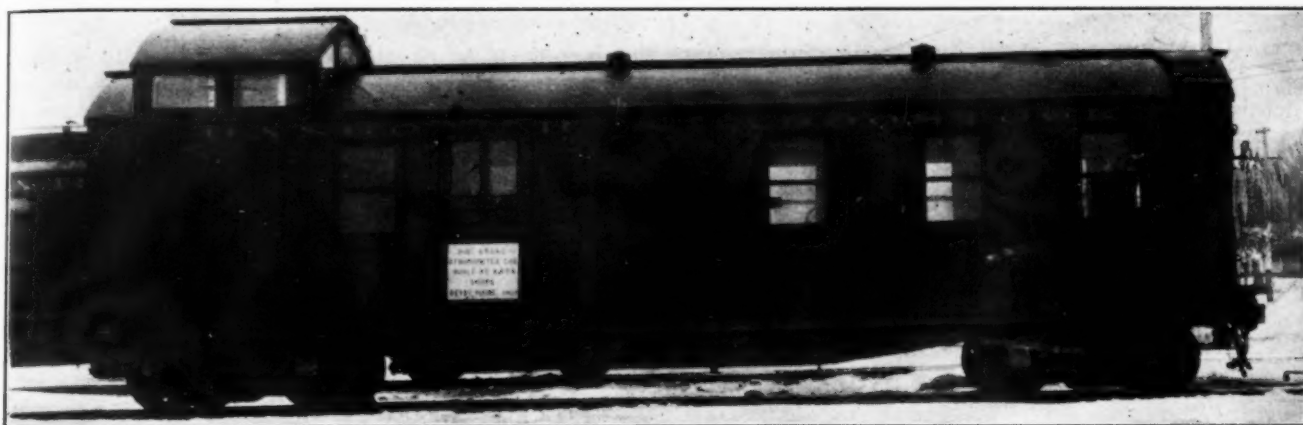
2. The Commission holds that it has the power to condemn a particular rate under the provisions of Section 15a, if it thinks that that rate will impair the aggregate net railway operating income of the carriers in a rate group.

3. The Commission holds that it has the power to condemn a reduced rate proposed by a carrier because of the failure of that carrier affirmatively to show that transportation conditions on the lines of other carriers serving competing shippers are less favorable than the transportation conditions of the carrier seeking to establish the rate.

4. The Commission holds that it has the power to condemn a particular rate of one carrier or carriers because such carriers failed affirmatively to show that such rate is in accord with the policies prescribed for the Commission by the Hoch-Smith Resolution in the face of the fact that such policies are vaguely described, are indefinite and have not been defined either by the Commission or the courts.

5. The Hoch-Smith Resolution states that the Commission may consider the "conditions that prevail in the several industries" in so far as that is legally possible and the Commission construes that resolution as giving it power to deal with conditions that prevail in parts of an industry as distinguished from "the several industries" as described in the resolution.

6. The Commission holds (a) that it is settled practice that the burden of justifying a reduced rate is upon the carrier proposing it, despite the fact that no such burden is by law placed upon the carrier in such circumstances. Paragraph (7), Section 15 places the burden upon the carrier to justify a rate sought to be increased or a rate increased after January 1, 1920. Expressio unius est exclusio alterius. And, in addition, the Commission holds (b) that where a carrier proposes a rate, it is not sufficient for the carrier in justification of that rate to show that it does not violate Sections 1, 2, 3 and 4 of the Interstate Commerce Act, which are the sections which define the duties and obligations of the carriers under that act.



The Bangor & Aroostook Air Brake and Dynamometer Car Built at the Derby, Maine, Shops

Bangor & Aroostook Builds Own Dynamometer Car

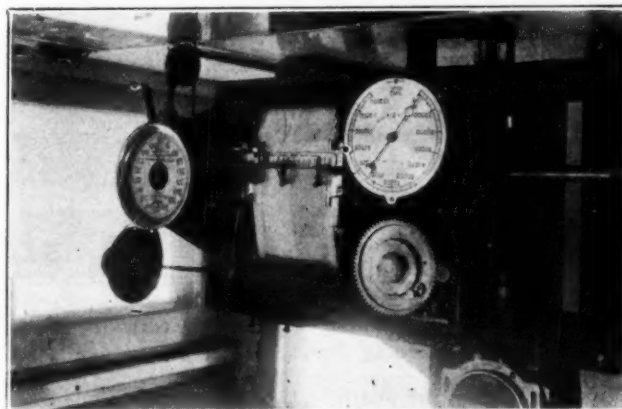
Cost of equipment, \$600—Much informative data has been secured by the use of this instrument

IN 1925, it was becoming necessary on the Bangor & Aroostook to use two locomotives to haul certain freight trains which had ordinarily required one locomotive for the same tonnage. It seemed evident that the full capacity of the locomotives was not being utilized, but the use of a dynamometer car was considered the only accurate means of determining the truth of this supposition. It was finally decided to design and build a dynamometer at the shops at Derby, Me. The dynamometer, which was first installed in a caboose, was used extensively during 1926 and much interesting and valuable data was collected. During 1927, it was decided to build a new air brake instruction car and one end of this car was used for the installation of the dynamometer equipment. The cost to build and install the dynamometer and recording apparatus was about \$600.

Rebuild Old Box Car

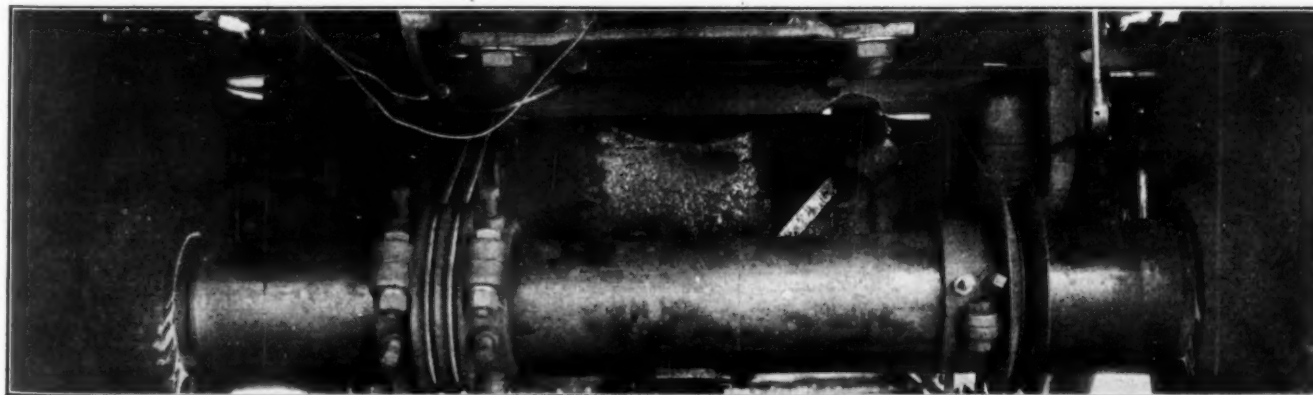
The present air brake and dynamometer car was provided by completely rebuilding an old box car. A heavy fish-belly center sill was applied and the car was fitted with modern trucks and 6-in. by 8-in. couplers. The dynamometer equipment is located in the end of the car, on the roof of which the cupola has been built. The

weighing head is set in the drawbar yoke in place of a Miner draft gear. A dual hand brake was applied permitting its application from the inside of the car as



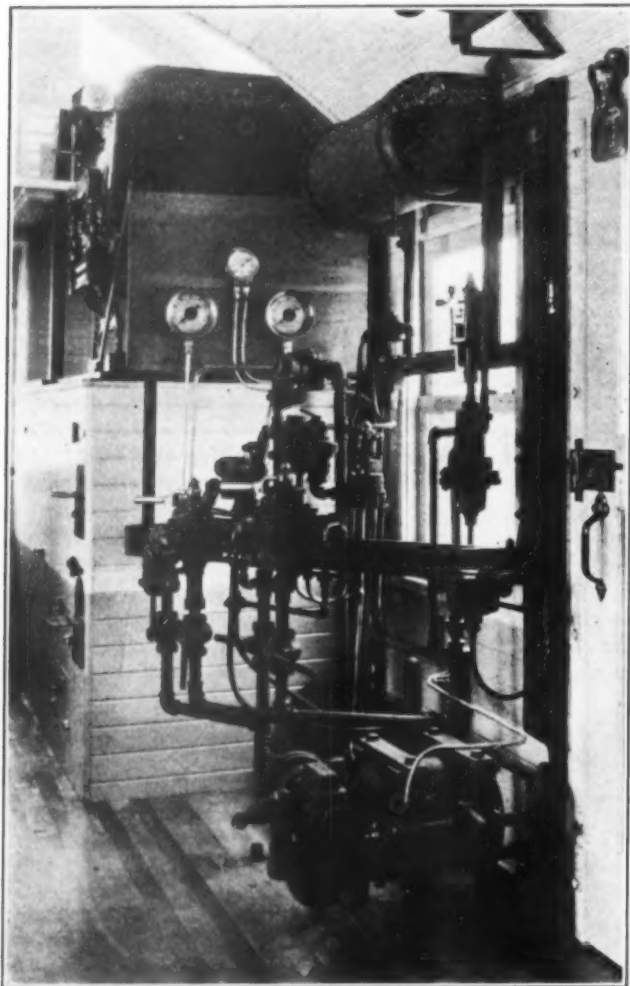
The Dynamometer Recording Instruments

well as from the outside. The car is piped with a steam line for use in passenger service.



A View Under the Car Showing the Drives for the Two Speed Recorders

The weighing head, which is 9 in. in diameter, is made from a locomotive axle. The piston chamber, which is 5 in. in diameter, and the piston which is 6½ in. long, are both accurately ground to a close working



The Locomotive Air Brake Equipment, with the Dynamometer Recording Station in the Background

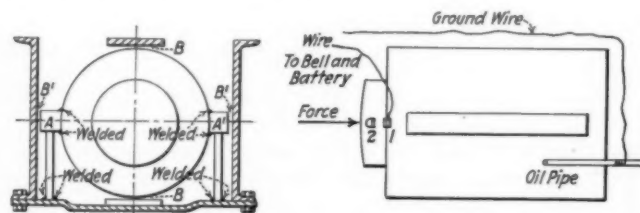
fit. The maximum piston travel is ½ in. The piston exerts its pressure against oil which is prevented from leaking from the pocket by a leather cup gasket held in place on the end of the piston by three ⅝-in. studs. Two lugs are welded on the outside of the weighing head. These lugs rest on two upright strips welded to

the bottom plate of the center sill so as to reduce friction to a minimum. These are the only points at which the weighing head is supported. It has clearance at all other points.

A ⅜-in. pipe leads from the weighing head oil pocket to a cut-out cock and a safety valve located underneath the car, and then passes through the floor up to the table on which the recording instrument is placed. The purpose of the cut-out cock is obvious. The safety valve protects the drawbar recording gage against heavy shocks. When a sudden shock exceeds a predetermined pressure to which the valve is set, the valve opens and allows the oil to bleed out.

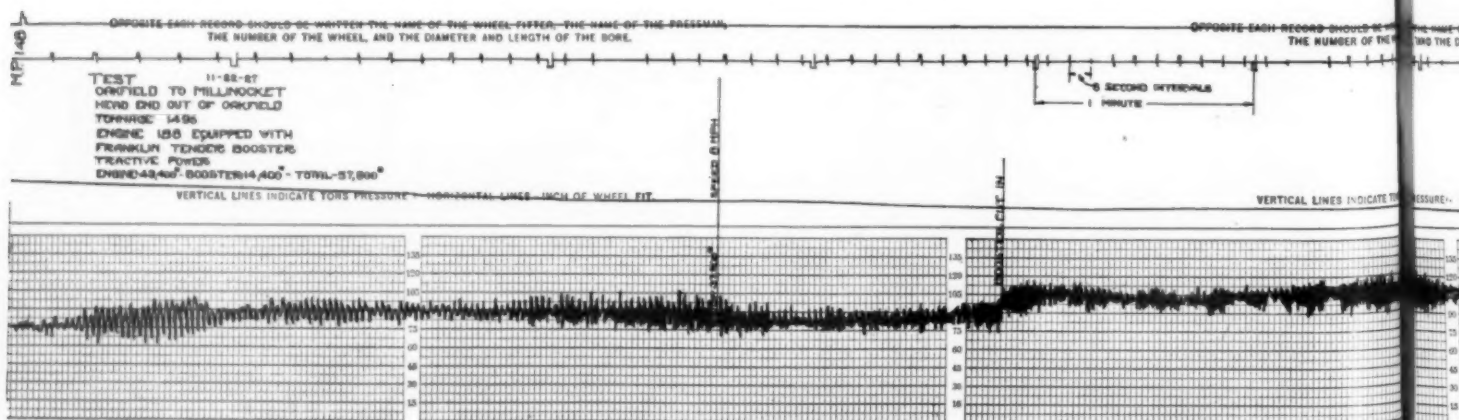
A pulsating valve is located in the oil pipe line just beneath the instrument recording table. The purpose of this valve is to prevent excessive pulsation of the drawbar recording pen. This valve is also used to cut out the weighing head when the car is not in dynamometer service.

A clever arrangement has been worked out to warn the operator when the quantity of oil in the dynamom-



Left: The Weighing Head is Supported at the Two Points A and A', with ⅛ in. Clearance at BB—Right: Weighing Head Low Oil Indicator Wiring; Contact (1) is Insulated from the Weighing Head and Ram

eter diminishes enough to allow the piston to travel beyond a predetermined point. One of two wires is connected to a contact point attached to the weighing head, but insulated from it, and the other to the brass oil pipe. These wires pass through the floor to the dry cell batteries and then to a bell located on the recording table. When oil seepage allows the ram to travel beyond a predetermined point, it will be seen in the sketch that a contact is made between the insulated connection (1) and the non-insulated contact point (2) on the ram, which closes the circuit, causing the bell to ring. The wire connections underneath the car can be seen in one of the illustrations. Two Alemite fittings have been installed in the oil pressure line; one underneath the car and one under the instrument board. These fittings are



A Section of a Dynamometer Recording Chart Showing the Text Data, Time Intervals and When the Booster Was Cut In

used for refilling the oil chamber when warning is received from the bell.

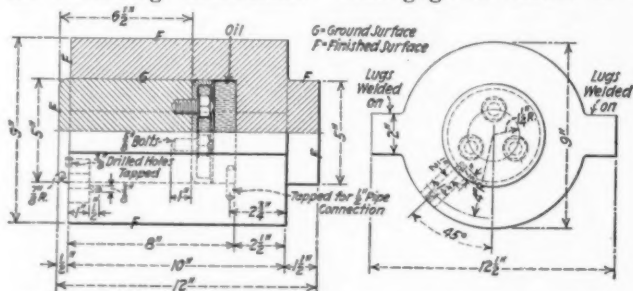
The Speed Recording Instruments

Two types of speed recording instruments are used. In the illustration showing the equipment located beneath the car, the axle drum on the left drives a standard Warner passenger car speed recorder and the drum on the right drives a Boyer speed recorder specially designed for this work.

The Warner recording gage, shown in one of the illustrations to the left and above the dynamometer recording instrument, is connected to the gear reduction box underneath the car by a $\frac{1}{2}$ -in. shaft encased in a 1-in. brass tube. Two sets of ball bearings are located, one at the top and one at the bottom of the shaft to reduce the friction to a minimum. The wire leading from the gear reduction box of the Boyer recorder passes through the floor to the recording instrument. This wire is encased in $\frac{1}{4}$ -in. brass pipe. The gear reduction boxes of both recorders are securely bolted to an angle iron bracket which is riveted to the center sill channels.

The Dynamometer Recording Instrument

An Ashcroft wheel press recording gage is used as the recording instrument. The gage is bolted to a



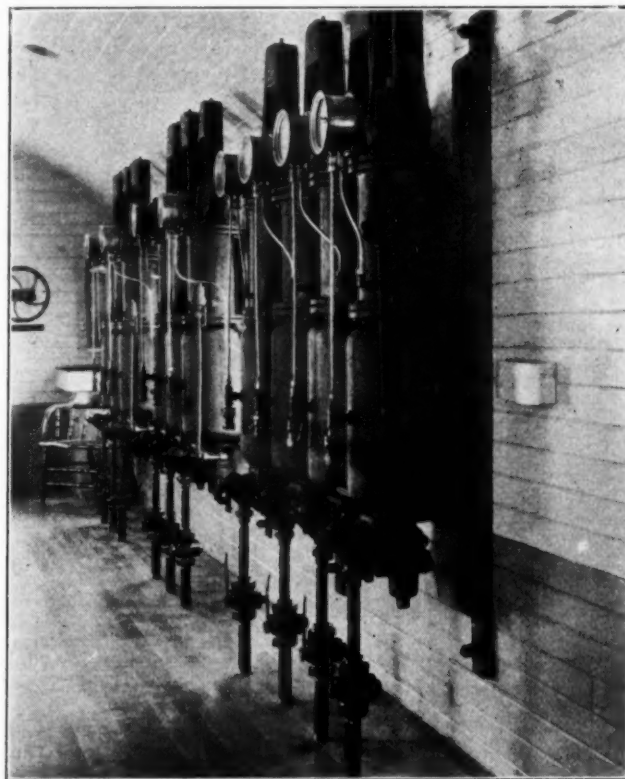
The Weighing Head is Made from a Locomotive Axle

heavy bracket to eliminate vibration. Changes have been made to the recording gage to adapt it to this special service. The four capillary pens used for recording on the paper are shown in the illustration. The pen at the right records the drawbar pull. A rule calibrated to correspond with the scale on the drawbar recording gage dial is held in a horizontal position across the surface of the recording paper.

The second capillary pen records the speed curve. This pen is attached to the end of a shaft connected to the Boyer gage. When the gage mechanism begins to function, the shaft pulls the pen away from the base

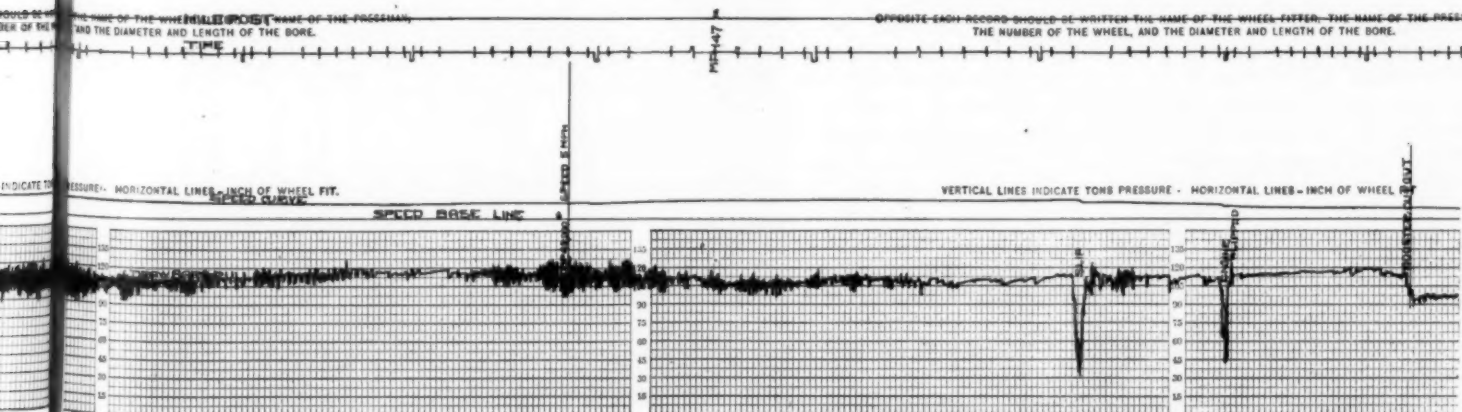
line on the recording paper. As may be seen in the illustration, a copper wire is attached to the pen and is connected to the mechanism in the Boyer gage. The purpose of this wire is to return the pen to the base line after the train comes to a stop. For every mile per hour, the pen is pulled $\frac{1}{32}$ in. away from the base line.

The third pen from the left records the time intervals. A very ingenious scheme has been worked out to secure on the recording paper, time intervals of six seconds and one minute. A Seth Thomas marine clock



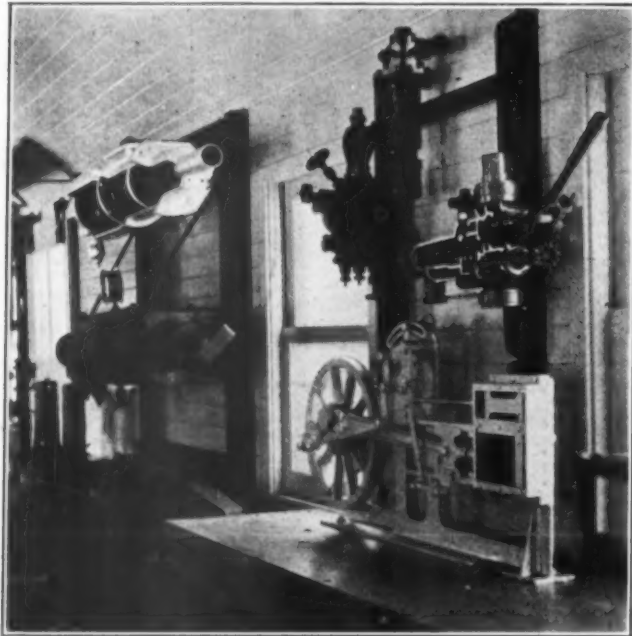
Ten Freight Car Brakes Each Provided with a Gage to Show Auxiliary and Brake Cylinder Pressures

was purchased and changed over to an electrical clock by a watchmaker employed as a machinist in the Derby shops. The next problem was to devise a means of making and breaking contacts at the proper intervals. Two magnets were taken from automobile horns, a thin steel diaphragm placed between them and the assembly



A Continuation of the Chart Showing the Speed Curve, Where the Locomotive Slipped and When the Booster Was Cut Out

fastened together. This unit is located beneath the recording table. A rod leading from the magnets passes through the table to a bell crank which connects with the horizontal rod that moves the pen. This series of levers may be seen in the illustration to the left and just below the Boyer gage. Three wires lead from the magnets to the Seth Thomas clock located on the front wall of the cupola. One of these wires serves as a ground connection. Each of the other two wires connects one of the magnets with the clock mechanism.



A Baker Valve Gear Model Together with Sectional Models of Equipment Used on Cars and Locomotives

One circuit is closed at intervals of six seconds and the other at one minute intervals, the two magnets moving the pens in opposite directions from its base line.

The fourth pen records the mile posts. A telegraph key shown at the right of the illustration, is connected up with the magnet of an automobile horn, as shown directly above the Boyer gage. A connecting arm extends from the magnet to a perpendicular arm to the lower end of which is attached the mile post pen. As a mile post is passed, the operator touches the key which closes the magnet circuit and causes the magnet to actuate the pen.

The gear and pinion, shown in the illustration, is connected to the drive shaft of the Warner speed recorder and drives the paper at a rate proportional to the speed of the car. The tension on the paper is regulated by a carefully calibrated clock spring. A piece of a typewriter roll, shown in the illustration, bears on the paper directly over the driving roll to prevent slipping. The paper travel is 23 in. to the mile. Three rolls of paper are equivalent to 100 miles.

Directly in front of the recording instrument, under glass, is the road profile which is rolled by hand on two drums. This profile drawing covers the entire road.

An air gage is located on each side of the electric clock. One gage shows the auxiliary reservoir and brake cylinder pressures and the other gage shows brake pipe and auxiliary reservoir pressures. These gages are used to determine how the engineman handles the air brake equipment. A signal valve is located directly above the clock. An emergency valve is located in

the left corner of the cupola. The locomotive headlight generator furnishes the current to light the car.

The chart, illustrated, is that of a test which was run on November 22, 1927. The maximum tractive force of the locomotive, equipped with a tender booster, is 57,800 lb. At a speed of seven miles per hour, hauling 1,496 tons, the chart shows a drawbar pull of 37,500 lb. The booster was then cut in, which increased the drawbar pull to 49,000 lb. The speed dropped to four miles per hour and then the engine began to slip. At three miles per hour, the booster was cut in and it will be seen that the locomotive began to pick up speed.

The records are made on a regular wheel gage press recording chart and values for speed and drawbar pull are read by applying suitably calibrated scales to the chart.

The remainder of the car in which the dynamometer equipment is installed is used as an air brake instruction car. The photograph of the air brake equipment used on the engine shows the old style A-1 equipment, automatic and straight air equipment, E-T equipment with B-6 and M3a feed valves, an old style signal valve with a reducing valve, a new style signal valve used with E-T equipment and an engine and a tender brake cylinder.

Another view shows a Baker valve gear model, a sectional model of a freight car brake equipment, the same equipment in working order, a passenger car brake cylinder to show the operation of the slack adjuster, sectional models of an injector, a high speed reducing valve, steam heat regulating valve, a lubricator and a C-6 feed valve and whistle reducing valve.

On the opposite side of the car, ten air brake cylinders are piped to show how the equipment operates on a ten-car, 33-car, 64-car and 100-car train. A gage has been placed on each of the ten cylinders to show the auxiliary and brake cylinder pressures. All the piping is carried underneath the car.

* * *



Photo, Courtesy Boston & Maine

Back in the Seventies Center-Draft Oil Lamps Were the Last Word in Car Lighting

The Future of Valuation*

*Should keep work up to date—Value will
continue to be a necessity of regulation*

By T. P. Artaud

Director of Research for National Association of
Owners of Railroad and Public Utility Securities

THE basic valuations will be substantially completed by July 1 of this year, except perhaps a few of the major carriers. This task has been so tremendous as to seem impossible of accomplishment. This notable achievement is due in great part to the dynamic driving force of Commissioner Lewis. Prior to his time, the valuation bureau was apparently an orphan; it suffered often from lack of nourishment in the way of appropriations; it passed through the vicissitudes of the war with the consequent loss of man-power. All these things retarded the work.

The question, however, which interests most of us now is the future of the valuation work. There must be some merit in valuation because it has withstood so many vicissitudes and finally stands today substantially completed in so far as primary valuations are concerned. Personally, I am a firm believer in the usefulness of the work in the past and the necessity for its continuation in the future. I believe that it will assist the public in a better understanding of the financial needs of the railroads, and the integrity of their securities, and, if that is accomplished, just and wise legislation will follow instead of hasty and ill-conceived legislation.

Uncertainty as to Procedure in the Future

In discussing briefly the prospects for the future, I realize the difficulty of attempting to forecast what will be done. I first want you to know that I have no advance information to disclose. Neither do I know the future policy of the commission other than that which has been made public. What I shall say is perhaps obvious to you from your study of the situation. You know, as well as I, the situation at present with the theory of the O'Fallon case upsetting the prior valuation procedure. The entire valuation situation is one of chaos both from the standpoint of future procedure and the correctness of what has been done in the past. The courts for years, evidently for some good reason, have not passed upon the principles of valuation enunciated by the commission. None of us know definitely whether or not the principles applied in the primary valuations will eventually be upheld in the courts, but apparently so far as these basic valuations are concerned the principles will never be determined. The Supreme Court has said it will not pass upon the valuations until the commission makes use of them. Obviously the commission will make no direct use of the 1914 valuations and will only use the valuations when they are brought to date. So only when the valuations are brought to date and used either in making rates or in recapture proceedings or for some other purpose, will the court take jurisdiction to tell the public whether the commission has been right or wrong.

As to the future, it seems reasonable to assume that the commission will surely profit by its past experience

and will immediately map out a program of bringing valuations to date in a specified period. Of course, if a program is mapped out, necessarily the commission must also map out a definite method of accomplishing the desired results. It has, however, made no announcement to indicate its views along that line. The delay in getting the O'Fallon case to the Supreme Court may affect somewhat the method adopted by the commission. Apparently that case will not be argued before the Supreme Court until the fall term, and the commission may await that decision before definitely announcing the methods it will pursue. The O'Fallon case suggests the accounting method of bringing valuations to date for property other than land and if it is sustained the process of bringing down values will be greatly simplified. Of course, until some pronouncement is made by the commission, we can only speculate as to the methods which will be adopted. However, there are some obvious comments which can be made respecting the methods to be employed.

Land Values

Apparently, in any event the land must be re-valued as the commission in the O'Fallon proceeding suggests no change with respect to the practice of ascertaining the present value of lands as of the date of the inquiry. This does not necessarily indicate that a careful appraisal of every parcel of land will again be made. Some new method must be adopted to shorten the land appraisal work such as a joint survey of the carriers' lands with the idea that the re-appraisal might be confined to portions of the carriers' lands where substantial changes have occurred either in reductions or increases in value. This procedure is entirely feasible with sincere cooperation between the carriers and the bureau.

Order No. 3 Work

Under any method of valuation you must, either for the purpose of an inventory or for the purpose of adding money changes to the 1914 values, be able to ascertain accurately the additions to and retirements from the property. This in itself is a tremendous job. Whatever the courts may decide, it will be necessary for the carriers to make returns to Valuation Order No. 3 in which they will report a detailed statement of additions and betterments to and retirements from their properties. Some method must be adopted by the commission to satisfy itself as to the substantial accuracy of these returns. But the verification should be done in a practical manner rather than a burdensome detailed check of each spike or bolt installed. Otherwise this phase of the work will never be completed in sufficient time to be of use.

The method of treatment of the roadway and structures, of course, is in doubt. If the O'Fallon principle is adopted there will be nothing to do except to add to and subtract from the primary values the money changes. This procedure, however, would in my opin-

* An address before the members of the Pittsburgh-Chicago District Cost Data Committee, Presidents' Conference Committee on Federal Valuation, on March 13.

ion require a change in the act, as the act now provides that the valuations must be brought down to date "in like manner" as made in the first instance.

If the O'Fallon case is not upheld or the act is not amended to eliminate the phrase "in like manner" the inventory itself must be kept up to date. This will not require a new physical inventory of the property each year as the inventory can be adjusted to date by adding to or subtracting from the basic inventory the quantities reported through Order No. 3. In addition to correcting the inventory, it will also be necessary to apply new prices to obtain cost of reproduction, new either by a direct application of prices ascertained during later periods, or by the application of a proper trend, which should be developed from cost studies for the items in each account separately. It would seem that the latter would be more practicable and accomplish sufficiently accurate results.

In connection with the method of bringing values to date, I believe that the plan used for the primary valuations is too cumbersome for practical use by an administrative body.

After the field work is completed, a tentative valuation must be served, protests filed, long hearings follow and months, even years elapse before a decision is reached. It will be a tremendous task to bring valuations down to date in sufficient time to be of any practical or immediate use. The valuations will always be two or three years behind. Some simpler method must be devised to meet the practical needs of an administrative body in performing its regulatory functions.

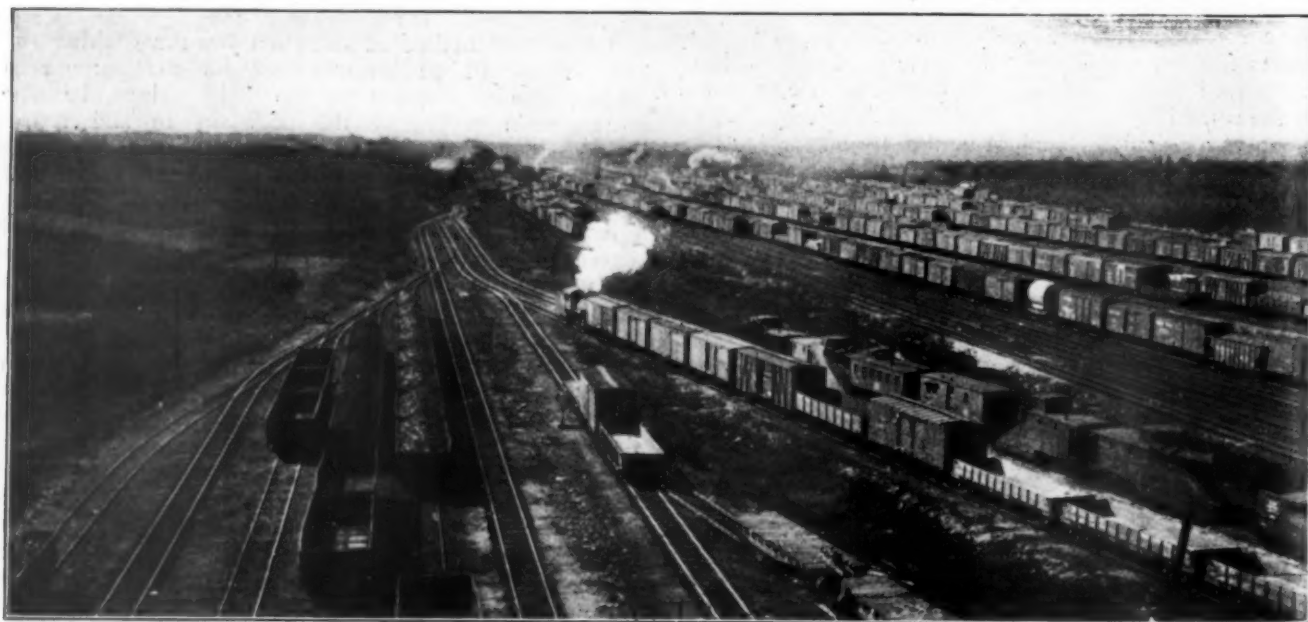
Don't let false prophets mislead you into believing that valuations will not be kept up by some method or other. There is no question but that the valuation work must continue indefinitely. It is necessary under our scheme of regulation. It is needed in order to determine the proper level of rates. Under the law, rates should be established which will yield the carriers in rate groups a prescribed rate of return upon the aggregate value of their properties. Valuation is also necessary in connection with consolidation and, as you know, great pressure is now being brought to bear to hasten consolidations. It is also essential in connection with security issues and in connection with the administra-

tion of the recapture provisions. Even though Section 15a were repealed, there would still remain the necessity of keeping valuations up to date because generally speaking the carriers like any public utility are entitled to rates as a whole which are sufficiently high to yield a fair return upon the fair value of their properties devoted to the public service. Of course, if 15a is repealed, there might not be the same incentive for Congress to give the commission sufficiently liberal appropriations for it to function properly.

In my opinion there is no prospect for repeal of Section 15a and it should not be repealed. It is true that there is some agitation on the part of certain interests for its repeal, but the commission must have a yardstick definitely prescribed for it to fix rate levels. This section has given investors confidence in the soundness of railroad investments and has enabled the national system of transportation to reach a high-water mark of efficiency. Its repeal would adversely affect the credit of railroads and their ability to attract the capital necessary to expand their facilities.

Let me emphasize that there is a continuing need for valuation. It seems to me, if I may suggest to you without any criticism of the policy pursued by some of the railroads to disband and weaken their forces at this time, that no matter what method is pursued, whether it be the accounting method, current reproduction theory, or the so-called O'Fallon method, the provisions of Valuation Order No. 3, the policing of carriers' accounts, maintaining an up to date inventory and administration of the depreciation order will necessitate a well-trained personnel familiar with all the ramifications of this subject. Suppose you were required to bring your valuations to date, how many carriers would have their necessary maps, quantities and other data ready to proceed? I have some knowledge of their condition and I believe that very few carriers are prepared. Necessarily the conclusion is that if such an event comes about (and it will happen), you will be confronted with the practical problem of immediately preparing these maps and other data, and perfecting your organizations. I will let you estimate the unnecessary expense and delay that will result.

* * * *



Rigby Yard of the Portland (Me.) Terminal Company

Chauncey M. Depew, Dean of Railroad Executives, Dies

New York Central chairman, statesman and kindly philosopher, was in ninety-fourth year

CHAUNCEY M. DEPEW, chairman of the board of directors of the New York Central and dean of railroad executives in this country, died in New York on April 5 of pneumonia after a few days illness. Mr. Depew was almost 94 years of age, having been born on April 23, 1834.

Born in Peekskill, N. Y., he attended Yale University, being graduated from that institution with the class of 1856. Then followed two years of law study and admission to the New York bar in 1858. In 1861—62 he was a member of the New York State legislature and in 1863 was secretary of state of New York. Shortly thereafter he was appointed United States Minister to Japan but he declined the honor.

Mr. Depew's first association with railroading began in 1866 when he became attorney for the New York & Harlem (one of the New York Central subsidiaries). In 1869 he went in a similar capacity with the New York Central & Hudson River, predecessor to the present New York Central. His rise was rapid. In 1875 he became general attorney for this company, in 1882 its second vice president and president in 1885. In this capacity he remained until 1898 when he became chairman of the board of directors in which position he remained until his death.

Aside from his active railroad career, Mr. Depew also had an extraordinary record in public life. As stated above he was a member of the New York state legislature when only 27 years of age. He was an unsuccessful candidate for lieutenant-governor in 1872. He served as a member of the New York state board of regents for 27 years, beginning in 1875. In 1885 he declined election as a United States Senator and was proffered the post of Secretary of State in the cabinet of President Harrison, which he likewise declined. At the Republican national convention in 1888 he received a substantial minority of the vote as a presidential candidate. Following his election to the chairmanship of the board of directors of the New York Central he was twice elected United States Senator, 1899—1905 and 1905—1911. He has had an unbroken record as delegate at large to every Republican national convention since 1888.

Despite this remarkable career in railroad and public life, however, Mr. Depew was perhaps best known to the American people—and all readers of newspapers knew him—as a genial and witty philosopher than whom none other was more in demand as a speaker on all public occasions. His humor, his counsel of optimism and contentment found almost universal response, making his every public appearance bring throngs of hear-

ers, and caused the daily press, knowing his popularity, to give the widest publication to his statements. It was Chauncey Depew who delivered the oration at the unveiling of the Statue of Liberty in New York Harbor. It was Chauncey Depew who delivered the principal address at the opening of the Chicago World's Fair. And since those occasions, as prior to them, he was constantly sought by his fellow citizens as their best loved spokesman.

Railroading was in its infancy when Mr. Depew reached manhood—indeed it was less than 10 years old at the time of his birth. Those were the days of pioneering, laying the groundwork for a great industry, and men with imagination and daring were needed. Commodore Cornelius Vanderbilt, founder of the New York Central, it was who first recognized the ability of the promising young law-

yer—politician who had then just received appointment as United States Minister to Japan and dissuaded him from accepting it, holding out for him a much more promising future in railroading. Mr. Depew allowed himself to be persuaded and 20 years later he was president of the New York Central. Mr. Depew's career thus coincided with the entire period of active railroad development in the United States. His death found him at the head of a system of some 12,000 miles—a giant among industries, prosperous, and serving the transportation needs of millions of persons, an institution which has kept pace, measure for measure, with the tremendous growth in wealth and population of the territory it served, having no small part in aiding that growth. That such progress could take place in 62 years, the period of Mr. Depew's association with the property, testifies not only to his leadership, but also to the vigor and vitality of the industry with which he threw his lot.



Chauncey M. Depew

Looking Backward

Fifty Years Ago

An experiment which may result in removing to a considerable degree, the objection against narrow-gage roads that they necessitate breaking gage, is being tried on the Denver & Rio Grande—that of running standard-gage cars on narrow-gage tracks. Car bodies and trucks are constructed so that they can be interchanged by means of a hoisting apparatus.—*Railway Age*, April 4, 1878.

Chauncey Depew, general counsel of the New York Central & Hudson River (now part of the New York Central) made a powerful speech recently before the railroad committee of the New York state legislature against the proposal to create a state board of railroad commissioners. He said the bill proposed to establish a literary railroad bureau for the Empire state and ridiculed the idea that a body of men who had never managed a railroad 10 rods long could manage the railroads better than those who were brought up to the business.—*Railway Age*, April 4, 1878.

The Wabash has put on a line of sleeping cars through between St. Louis and Boston over its road, the Canada Southern, the New York Central and the Hoosac Tunnel Line. The cars reach Boston about 44 hours after leaving St. Louis. This is believed to be the longest line of sleeping cars now running without a change, the distance being 1,201 miles.—*Railroad Gazette*, April 5, 1878.

Twenty-Five Years Ago

In his annual report the consulting engineer of the Railroad and Warehouse Commission of Illinois, states: "In my opinion, the adoption of the automatic stop is entirely practical for the purpose of operating trains in lieu of the telegraphic system, and would result in the saving of many thousands of dollars expended annually on the part of the railroad companies for damages to persons and property."—*Railway Age*, April 10, 1903.

On April 9 the United States Circuit Court of Appeals at St. Paul, Minn., handed down a decision in the Northern Securities case in which it enjoined that company from acquiring further stock of either the Northern Pacific or the Great Northern. The Securities company was also enjoined from exercising any control over the corporate acts of the two railroads.—*Railway Age*, April 10, 1903.

A. W. Newton, formerly first assistant to the chief engineer of the Chicago & Alton, has been placed in charge of construction of the new cut-off line in Missouri, between Old Monroe and Mexico, which is to be built up by the Chicago, Burlington & Quincy and used jointly with the Alton.—*Railway Age*, April 10, 1903.

Ten Years Ago

Angus D. McDonald, vice-president and controller of the Southern Pacific, has been temporarily detailed to Washington as acting treasurer for the Railroad Administration.—*Railway Age*, April 5, 1918.

The three regional directors of the Railroad Administration have each issued a circular directing the discontinuance of traffic solicitation and advertising. It is suggested that all men employed exclusively in solicitation be transferred to the operating department to supervise the unloading of cars quickly.—*Railway Age*, April 5, 1918.

S. T. Bledsoe, assistant general solicitor of the Atchison, Topeka & Santa Fe, has been appointed general counsel, succeeding Walker D. Hines, who is assistant to the Director-General of the Railroads.—*Railway Age*, April 5, 1918.

New Books

Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

Flood Control in the Mississippi Valley—Report Submitted by Hon. Frank R. Reid of Illinois, Chairman, from the Committee on Flood Control (To Accompany H. R. 8219). "Railway damage claims" p. 146, "Who's who of witnesses" [9 railway engineers listed], p. 219-223, "Relation of railroads to flood control" p. 224-228. 70th Cong., 1st sess., House Rept. No. 1072. 395 p. Pub. by U. S. Govt. Print. Off., Washington, D. C.

Interstate Commerce Commission. Chart dated March 1, 1928, showing members and present terms, organization of divisions and bureaus with duties of each, officials and salaries, and number of employees. Sub-charts show employees and expenditures, volumes of reports and pages of testimony 1890-date. Pub. by Research Office, National Association of Owners of Railroad and Public Utility Securities, Washington, D. C., Apply.

A State Movement in Railroad Development—The Story of North Carolina's First Effort to Establish an East and West Trunk Line Railroad, by Cecil K. Brown. Early railroad and economic history. 300 p. Pub. by University of North Carolina Press, Chapel Hill, N. C., \$5.

The Story of Public Utilities, by Edward Hungerford. "This book aims to give in as simple a way as possible a picture of the origin, the development and the practical workings of the utilities which serve our cities and our country. It is intended to supplement textbooks in science and social studies by bringing together interesting and helpful information that is now obtainable only in scattered articles and small pamphlets." Foreword by Mrs. H. G. Danforth, President, Board of Education, Rochester, N. Y., p. iii-iv. Chapters 2-4 are devoted to railroads. Illustrated. 384 p. Pub. by G. P. Putnam's Sons, New York City. \$2.50.

Periodical Articles

Designing of Carriages for Comfort, by A. N. Moon, "A brief analysis of the chief causes of discomfort in railway travel and a consideration of some means of reducing it." Among other things the author considers comfort and safety and comfort and danger. *Journal of the Institution of Locomotive Engineers*, in the issue of January-February 1928, p. 7-31.

Industrial Electric Locomotives, by R. M. Campbell. Illustrated article describing various types and sizes for widely different uses. *Baldwin Locomotives*, April 1928, p. 47-57.

Keeping Trains Out of Wrecks, by Jesse F. Gelders. Dispatching crises and how they were met, *Popular Science Monthly*, April 1928, p. 37-131.

Motive Power Development on the Denver & Rio Grande Western Railroad, by Paul T. Warner. An illustrated article discussing both narrow-gage and standard-gage locomotives, *Baldwin Locomotive*, issues of January 1928, p. 3-28, April 1928, p. 27-44.

Workmen's Compensation and the Conflict of Laws, by Ralph H. Dwan. Six important questions are raised, in connection with each one of which cases involving railroads are cited. *Monthly Labor Review*, March 1928, p. 56-73.

Odds and Ends of Railroading

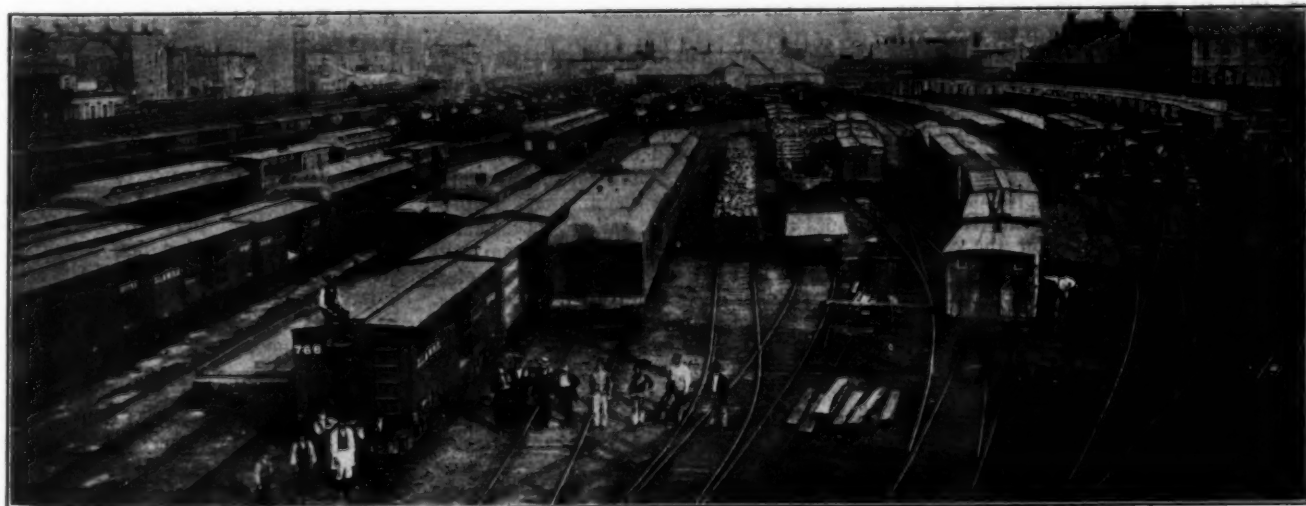


ABOVE

RAILROAD MEN WHO DON'T SWEAR—O. C. Brown, ticket agent, W. Halsey, chief clerk to master mechanic, and J. L. Coss, dispatcher—all of the Rock Island at Shawnee, Okla.—organizers of a "Don't Swear Club."

BELOW

SCRANTON YARDS, D. L. & W., during the 1877 strike—note the number of "Blunder-Buss" stacks which are idle—our thanks to G. J. Ray, chief engineer of the D. L., for the photo.



The Denver & Salt Lake Ry. Co.

GOING COUPON

DENVER

TO

WEST PORTAL

Good Only on First Passenger Train Through
Moffat Tunnel

No. 50

Form Spl.

The Denver & Salt Lake Ry. Co.

RETURN COUPON

WEST PORTAL

TO

DENVER

Good Only on First Passenger Train Through
Moffat Tunnel

No. 50

Form Spl.

HISTORICAL COUPON

Issued in connection with first passenger
train through Moffat Tunnel,
February 26, 1928

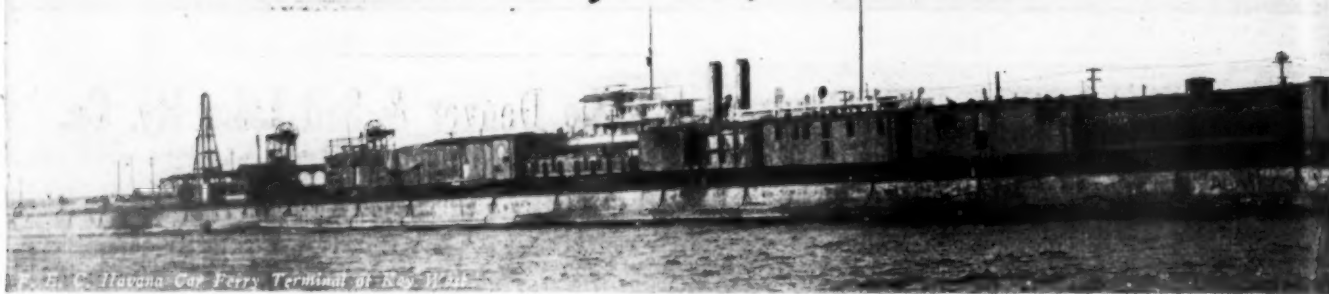
If passenger will write name and address
below, this coupon will be deposited in sealed
vault in Moffat Tunnel to be opened Febru-
ary 26, 1978.

Name

Address

SOUVENIR TICKETS for Moffat tunnel opening
—the coupons will be viewed again in 1978

NEWS of the WEEK



A STANDING COMMITTEE ON AVIATION for the Missouri Pacific lines has been authorized by L. W. Baldwin, president, for the purpose of studying future developments of that industry as they may offer a practical field for the expansion of the railroad's activities.

THE NEW YORK STATE LAWS authorizing cities, towns and villages to grant operating rights to motor coaches and street railways, referred to in the *Railway Age* of March 31, page 764, have been signed by the governor. That referring to motor coaches is Chapter 717 and the one dealing with street railways is 733.

THE BROTHERHOOD OF SLEEPING CAR PORTERS began taking a strike vote among its members on March 27. If a strike is ordered it will be in protest against the refusal of an increase in the present wage scale which, the porters state, makes it necessary for them to depend to a large extent upon tips for their earnings.

THE INTERSTATE COMMERCE COMMISSION has approved the installation of the automatic train-control system of the Union Switch & Signal Company on the Illinois division of the Atchison, Topeka & Santa Fe, which was made pursuant to the commission's second train-control order, of January 14, 1924.

THREE STOCKMEN were killed and four were injured when a freight train of the Chicago, Rock Island & Pacific ran into the rear of a stock train near Loring, Kan., on March 28. The men were riding in the caboose at the time of the accident. The accident occurred on the tracks of the Union Pacific over which the Rock Island operates under trackage rights.

A DIRECTORY of through package cars, just issued by the Pennsylvania Railroad, shows, in two lists, one for the eastern region and one for the lines west of Altoona and Renovo, all the special freight cars regularly sent out on the company's through trains. The pamphlet, 4 in. by 6 1/4 in., is made up of 53 pages of small type. Some of the cars are run only three days in a week, as for example, Monday, Wednesday and Friday or Tuesday, Thursday and Saturday; but the great majority are sent out every week day.

THE INTERSTATE COMMERCE COMMISSION has approved the installation of the continuous inductive automatic train-control system of the Union Switch & Signal Company on 132.6 miles of the Roanoke sub-division of the Norfolk & Western between Roanoke and Shenandoah, Va., as meeting the requirements of the Commission's specifications and order. The cost of the installation was reported as \$1,263,642.50.

THE AMERICAN SHORT LINE RAILROAD ASSOCIATION will hold its sixteenth annual meeting in Mexico City on May 10. A special train will be operated from St. Louis in addition to special cars from a number of other points. The entire party will leave San Antonio, Tex., on the night of May 6 and will arrive in Mexico City on the morning of May 9. The party will leave Mexico City on Tuesday morning, May 15, arriving at San Antonio on Thursday morning, May 18.

THE INTERSTATE COMMERCE COMMISSION has issued an order directing the railroads to report not later than April 20 their total number of steam locomotives and the number of them which are equipped with mechanically-operated firedoors. A complaint has been filed with the commission by the Brotherhood of Locomotive Engineers and the Brotherhood of Locomotive Firemen & Enginemen asking the commission to require such doors and the order says that the complainants have asked for this information.

A BILL TO AMEND the interstate commerce act in its application to electric railways has been introduced in Congress by Representative Johnson, of Indiana, H. R. 12,108, which would bring certain classes of electric railways more completely under the direction of the commission. It provides that an electric railway operated as an integral part of a general steam railroad system of transportation or an electric railway engaged in the general transportation of freight may be declared by the commission to be a "commercial electric railroad" and subject to the commission's jurisdiction, as distinguished from street, suburban or interurban electric railways.

TOBIAS C. NORRIS, former Premier of Manitoba, was last week appointed by the

Dominion government to succeed A. C. Boyce on the Dominion Railway Board at Ottawa. Mr. Boyce retired a few months ago when his term on the Board expired. Mr. Norris is a native of Brampton, Ont., where he was born September 5, 1861. He was first elected to the Manitoba Legislature in 1896 and has been a member continuously since 1907. He was leader of the Liberal Opposition for a number of years, and upon the resignation of Sir Rodmond Roblin in 1915, became Premier of the province. Mr. Norris retained the leadership of the party until a year ago, when he resigned in favor of H. A. Robson, K. C.

A. R. E. A. Convention Date

The next or thirtieth annual convention of the American Railway Engineering Association will be held in Chicago on March 5-7, 1929. The National Railway Appliances Association will present its exhibit at the Coliseum on March 4-7.

N. E. Railroad Club Subject for Railway and Highway Operators

At the New England Railroad Club meeting on April 10 at the Copley-Plaza Hotel, Boston, the subject "The Railroad's Side of Grade Crossing Accidents" has been chosen as one to interest not only the railroad men alone, but also those in charge of railroad motor transport activities. The principal speaker will be A. H. Rudd, chief signal engineer of the Pennsylvania.

M-K-T Charged with Violation of Clayton Law

The Interstate Commerce Commission on March 26 made public a formal complaint charging the Missouri-Kansas-Texas "on information and belief" with violation of the Clayton act in acquiring a large part of the capital stock of the St. Louis Southwestern without the approval of the commission. The complaint was made Sub. No. 1 of the complaint, No. 20,672, recently issued against the Kansas City Southern. At the same time the commission announced a postponement to a date hereafter to be fixed of the hearing set for April 2 on the latter complaint.

Farm Train Tour

The Atchison, Topeka & Santa Fe has recently completed a 6-months' tour of Texas with its Texas Farm and Home Special demonstration train. The trip included 118 meetings with a total attendance of approximately 110,000 people; and it covered 4,000 miles.

Boston & Maine Crossing Watchmen

The Boston & Maine has contracted with the New England Contracting Company to supply attendants for 25 highway crossings in the vicinity of Boston; in Lexington, Waltham, West Medford, Cambridge, Somerville and Waverley. The new service was begun on March 30, and the president of the contracting company is A. J. Connolly, former superintendent of the Union Freight Railroad of Boston. Crossing watchmen who enter the service of the contractor will be given leave of absence from the railroad with their seniority rights and privileges fully protected; and individuals who do not wish to join the contracting company will be placed elsewhere in the railroad service.

The Boston & Maine, during the past year, has introduced the contract plan in freight houses, engine houses and some other places.

Transportation Lectures

A series of lectures on Transportation for students and others interested will be delivered by C. E. Barba, mechanical engineer, Boston & Maine, at The Pennsylvania State College, State College, Pa., April 24 and 25. "Unsolved Problems before the Railroads" is the title of the lecture to be delivered at 10 a. m. on April 24. At 11 a. m. and 4 p. m., respectively, on April 25 the lectures will be on the Application of Theory to Practice and the Field of Railroad Engineering and the Supply Industry. At 7 p. m. Mr. Barba will speak before the Student Branch of the American Society of Mechanical Engineers on Industrial Management and Personnel Problems of the Railroads.

New York Central Pensioners

The number of employees placed on the pension roll by the New York Central Lines in 1927, was 735, of whom only 337 had reached the age limit of 70 years. Of the remainder, 269 were retired on account of disability and 129 retired voluntarily under the rule permitting retirement at the age of 65 after 40 years of continuous service.

Of the 735 employees, about 6 per cent had been in service 50 years or more, including eight locomotive engineers who had served an average of 52 years, seven months and seven conductors averaging 51 years, nine months.

The pension payments in 1927 amounted in the aggregate to \$2,330,359 and the amount estimated necessary to pay, until end of their lives, the pensioners on the list at the end of 1927 is \$19,170,000.

The foregoing figures have to do with employee forces totalling 153,027 persons.

Failure of Cast Iron Wheels

In connection with failures of cast-iron wheels, the A. R. A. Committee on Brakes and Brake Equipment, has made an investigation to determine the braking ratio existing on freight equipment cars. Circular No. D.V.-567 of the Association states that this investigation, which included measurement of brake levers on a large number of cars disclosed that, regardless of the braking ratio specified, the actual brake shoe pressure, resulting from the application of incorrectly proportioned levers, all levers which were not standard for the cars ranged from an undesired minimum to an almost prohibitive maximum. This is particularly true of stock, tank and refrigerator cars and is undoubtedly contributing largely to the failure of cast-iron wheels.

Means for readily identifying the proper brake levers for all classes of cars, both home and foreign, are in course of preparation. Until such time as the results of these developments are available and proper means of lever identification is decided upon, the committee earnestly recommends that individual carriers use every means available to check levers on home cars, to see that the existing leverage ratios conform to that which is standard for the particular classes of cars.

Railway Net for February \$70,064,223

The net railway operating income for the Class I railroads for February was \$70,064,223, an increase of 0.8 per cent as compared with that for February last year. This was at the annual rate of return of 4.79 per cent as compared with 4.89 last February. Operating revenues for the month were \$456,593,283, a decrease of 2.8 per cent, while operating revenues were \$348,498,198, a decrease of 3.7 per cent. The net for the eastern roads showed a decrease of 8.2 per cent and that for the southern roads a decrease of 12.1 per cent, as compared with February of last year, while that of the western roads showed an increase of 21 per cent. The net railway operating income for the Class I roads for two months was \$126,662,598, a decrease of 3.3 per cent as compared with that for the corresponding months of last year. For the two months' period the net of the eastern roads was at the annual rate of 4.79 per cent on property investment, as compared with 5.36 per cent in the corresponding period of last year; that of the southern roads 3.74 per cent as compared with 4.50 per cent, and that of the western roads 3.93 per cent as compared with 3.68 per cent last year.

Proposed New Lines Before Parliament

A number of private railway bills were before the House Committee on Railways and Canals at Ottawa last week. Most of them received favorable consideration, although Charles A. Dunning, Minister of Railways, intimated to the committee that the government was not in favor of many more private railway charters.

The Edmonton, Dunvegan & British Columbia had a bill for the construction of two branch lines. One was for a line from Spirit River, Alberta, westerly 102 miles into British Columbia. The other was for a line from near Wembley, Alberta, 86 miles into British Columbia. These, it was explained, were for extensions of existing lines. After brief discussion the bill carried.

The committee passed a bill authorizing two Alberta branch line bills for the Canadian Pacific Railway providing for one twenty-five mile line from Acme northwesterly toward Red Deer and one line of eleven miles on the Rosemary north line. The Acme line reaching toward Red Deer will stop 40 miles short of that town.

Canadian National officers raised no objection to the bill providing that the ultimately projected line would not swing too close to its existing line in the same vicinity at present about thirty-five miles away. The Canadian Pacific gave assurance that the ruling of the railway commission in the matter of direction would be acceptable.

A bill to construct a Canadian Pacific Railway line from a point on the North Saskatchewan river to Prince Albert also passed.

Security Dealers Oppose Competitive Bidding

Dealers in investment securities in every state have signified by a 10 to 1 vote that, in their opinion, competitive bidding for railroad equipment trust securities has not worked out successfully and that, therefore, the whole question should be carefully reconsidered before the Interstate Commerce Commission makes its policy in this respect permanent. This information has been made public by Ernest L. Nye, of Freeman & Co., New York, who, two months ago, sent questionnaires throughout the country seeking to find out the attitude of the bankers.

Discussing the replies to the questionnaire received by his firm, Mr. Nye declared that the most impressive thing was the large number of firms in sections of the investment field far removed from Wall Street which come out strongly against the practice of competitive bidding. Thus far the commission has expressed itself as favoring open bidding for equipment trust certificates only, but a bill has been introduced which aims to increase the authority of the commission to include all railroad securities floated. Mr. Nye does not believe that there is any attitude on the part of the commission which may be construed as at all favorable to the issuance of a recommendation applying competitive bidding to the sale of all classes of railroad securities. In fact, in his opinion, a period of tight money, coupled with a sharp decline in prices, may bring the commission face to face with the realization that a drastic narrowing of the market for equipment trusts has been more costly to the railroads than the estimated amount of dollars saved in bankers' discounts.

Meetings and Conventions

The following list gives names of secretaries, date of next or regular meetings and places of meetings.

- AIR BRAKE ASSOCIATION.**—T. L. Burton, 165 Broadway, New York City. Annual convention, May 1-4, 1928, Book-Cadillac Hotel, Detroit, Mich. Exhibit by Air Brake Appliance Association.
- AIR BRAKE APPLIANCE ASSOCIATION.**—Charles R. Busch, Buffalo Brake Beam Co., 32 Nassau St., New York. Meets with Air Brake Association.
- AMERICAN ASSOCIATION OF FREIGHT TRAFFIC OFFICERS.**—J. D. Gowin, 112 W. Adams St., Chicago.
- AMERICAN ASSOCIATION OF GENERAL BAGGAGE AGENTS.**—E. L. Duncan, 332 S. Michigan Ave., Chicago. Next meeting, April 17, 1928, Biloxi, Miss.
- AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.**—W. C. Hope, C. R. R. of N. J., 143 Liberty St., New York.
- AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.**—J. Rothschild, Room 400, Union Station, St. Louis, Mo. Annual convention, June 12-15, 1928, Memphis, Tenn.
- AMERICAN ASSOCIATION OF SUPERINTENDENTS OF DINING CARS.**—L. M. Jones, Supt. of Sleeping and Dining Cars, C. M. & St. P., Chicago. Annual meeting, October, 1928, Havana, Cuba.
- AMERICAN ELECTRIC RAILWAY ASSOCIATION.**—J. W. Welsh, 292 Madison Ave., New York. Annual convention, Sept. 22-28, Cleveland Public Auditorium, Cleveland, Ohio.
- AMERICAN RAILROAD MASTER TINNERS' COPPER-SMITHS' AND PIPE FITTERS' ASSOCIATION.**—C. Borchardt, 202 North Hamlin Ave., Chicago.
- AMERICAN RAILWAY ASSOCIATION.**—H. J. Forster, 30 Vesey St., New York, N. Y.
Division I.—Operating.—J. C. Caviston, 30 Vesey St., New York.
Freight Station Section (including former activities of American Association of Freight Agents)—R. O. Wells, Freight Agent, Illinois Central Railroad, Chicago. Next meeting, June 19-22, Niagara Falls, N. Y.
Medical and Surgical Section.—J. C. Caviston, 30 Vesey St., New York.
Protective Section (including former activities of the American Railway Chief Special Agents and Chiefs of Police Association)—J. C. Caviston, 30 Vesey St., New York. Next meeting, June 19-21, Hotel Statler, St. Louis.
Safety Section.—J. C. Caviston, 30 Vesey St., New York. Annual meeting, May 15-17, 1928, Hotel Statler, Buffalo, N. Y.
Telegraph and Telephone Section (including former activities of the Association of Railroad Telegraph Superintendents)—W. A. Fairbanks, 30 Vesey St., New York. Next meeting, Sept. 18-20, 1928, San Francisco.
Division II.—Transportation (including former activities of the Association of Transportation and Car Accounting Officers).—G. W. Covert, 431 South Dearborn St., Chicago. Next meeting, April 26, 1928, Hotel Chase, St. Louis, Mo.
Division III.—Traffic, J. Gottschalk, 143 Liberty St., New York.
Division IV.—Engineering, E. H. Fritch, 431 South Dearborn St., Chicago, Ill. Exhibit by National Railway Appliances Association. Construction and Maintenance Section.—E. H. Fritch.
Electrical Section.—E. H. Fritch.
Signal Section (including former activities of the Railway Signal Association).—H. S. Balliet, 30 Vesey St., New York.
Division V.—Mechanical (including former activities of the Master Car Builders' Association and the American Railway Master Mechanics' Association).—V. R. Hawthorne, 431 South Dearborn St., Chicago, Ill. Annual convention, June 20-27, 1928, Atlantic City, N. J. Exhibit by Railway Supply Manufacturers' Association.
Equipment Painting Section (including former activities of the Master Car and Locomotive Painters' Association).—V. R. Hawthorne, 431 South Dearborn St., Chicago. Next meeting, Sept. 11-13, Windsor Hotel, Montreal.
Division VI.—Purchase and Stores (including former activities of the Railway Storekeepers' Association).—W. J. Farrell, 30 Vesey St., New York, N. Y. Annual meeting, June 20-22, Atlantic City, N. J.
Division VII.—Freight Claims (including former activities of the Freight Claims Association).—Lewis Pilcher, 431 South Dearborn St., Chicago, Ill. Annual meeting, June 5-8, 1928, Book-Cadillac Hotel, Detroit, Mich.
Car Service Division.—C. A. Buch, 17th and H Sts., N. W., Washington, D. C.
Motor Transport Division.—George M. Campbell, American Railway Association, 30 Vesey St., N. Y. C. Next meeting, June 21-23, Rose Room, Hotel Traymore, Atlantic City, N. J.
- AMERICAN RAILROAD BRIDGE AND BUILDING ASSOCIATION.**—C. A. Lichty, C. & N. W. Ry., 319 N. Waller Ave., Chicago. Annual convention, Oct. 23-25, 1928, Statler Hotel, Boston. Exhibit by Bridge and Building Supply Men's Association.
- AMERICAN RAILWAY DEVELOPMENT ASSOCIATION.**—R. G. East, Agricultural Agent, Pennsylvania Railroad, Shelbyville, Ind. Annual convention, May 9-11, 1928 Miami, Fla.
- AMERICAN RAILWAY ENGINEERING ASSOCIATION.**—(Works in co-operation with the American Railway Association, Division IV). E. H. Fritch, 431 South Dearborn St., Chicago. Exhibit by National Railway Appliances Association.
- AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.**—G. G. Macina, C. M. & St. P. Ry., 11402 Calumet Ave., Chicago. Annual convention, August 29-31, 1928, Hotel Sherman, Chicago. Exhibit by Supply Association of the American Railway Tool Foremen's Association.—Secretary: E. H. Lund, Federal Machinery Sales Co., Chicago.
- AMERICAN SHORT LINE RAILROAD ASSOCIATION.**—T. F. Whittelsey, 1319-21 F St., N. W., Washington, D. C.
- AMERICAN SOCIETY OF MECHANICAL ENGINEERS.**—Calvin W. Rice, 29 W. 39th St., New York. Railroad Division, Marion B. Richardson, Associate Mechanical Editor, *Railway Age*, 30 Church St., New York.
- AMERICAN WOOD PRESERVERS' ASSOCIATION.**—E. J. Stocking, 111 West Washington St., Chicago.
- ASSOCIATION OF RAILWAY CLAIM AGENTS.**—H. D. Morris, District Claim Agent, Northern Pacific Ry., St. Paul, Minn. Next meeting, June, 1928, Omaha, Neb.
- ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.**—Jos. A. Andreucetti, C. & N. W., Room 413, C. & N. W. Station, Chicago. Semi-annual meeting, June 21, Atlantic City, N. J. Annual convention, Oct. 23-26, Hotel Sherman, Chicago. Exhibit by Railway Electrical Supply Manufacturers' Association.
- ASSOCIATION OF RAILWAY EXECUTIVES.**—Stanley J. Strong, 17th and H Sts., N. W., Washington, D. C.
- ASSOCIATION OF RAILWAY SUPPLY MEN.**—C. F. Weil, American Brake Shoe & Fdy. Co., 332 So. Michigan Ave., Chicago. Meets with International Railway General Foremen's Association.
- BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.**—W. D. Waugh, Detroit Graphite Co., St. Louis, Mo. Annual exhibit at convention of American Railway Bridge and Building Association.
- CANADIAN RAILWAY CLUB.**—C. R. Crook, 129 Chatham St., Montreal, Que.
- CAR FOREMEN'S ASSOCIATION OF CHICAGO.**—Aaron Kline, 626 North Pine Ave., Chicago. Regular meetings, 2nd Monday in month, except June, July and August, Great Northern Hotel, Chicago.
- CAR FOREMEN'S ASSOCIATION OF LOS ANGELES.**—J. W. Krause, 514 East Eighth St., Los Angeles, Calif. Regular meetings, second Friday of each month, 514 East Eighth St., Los Angeles.
- CAR FOREMEN'S ASSOCIATION OF ST. LOUIS, MO.**—A. J. Walsh, 5874 Plymouth, Apt. 18, St. Louis, Mo. Meetings, first Tuesday of each month, except July and August, Broadview Hotel, East St. Louis, Ill.
- CENTRAL RAILWAY CLUB.**—Harry D. Vought, 26 Cortlandt St., New York. Regular meetings, 2nd Thursday each month, except June, July, August, Hotel Statler, Buffalo, N. Y.
- CHIEF INTERCHANGE CAR INSPECTORS' AND CAR FOREMEN'S ASSOCIATION.**—(See Railway Car Department Officers' Association.)
- CINCINNATI RAILWAY CLUB.**—D. R. Boyd, 811 Union Central Bldg., Cincinnati, Ohio. Meetings, 2nd Tuesday in February, May, September and November.
- CLEVELAND RAILWAY CLUB.**—F. L. Frericks, 14416 Alder Ave., Cleveland, Ohio. Meetings, first Monday each month, except July, August, September, Hotel Hollenden, Cleveland.
- INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.**—W. J. Mayer, Michigan Central R. R. Detroit, Mich. Annual convention, August 21-22, 1928, Hotel Sherman, Chicago. Exhibit by International Railroad Master Blacksmiths' Supply Men's Association.
- INTERNATIONAL RAILROAD MASTER BLACKSMITHS' SUPPLY MEN'S ASSOCIATION.**—W. W. Criley, Ajax Mfg. Co., Cleveland, O.
- INTERNATIONAL RAILWAY FUEL ASSOCIATION.**—L. G. Plant, 80 E. Jackson Blvd., Chicago. Annual convention, May 7-11, 1928, Hotel Sherman, Chicago. Exhibit by International Railway Supply Men's Association.
- INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.**—Wm. Hall, 1061 W. Wabash Ave., Winona, Minn. Annual convention, September 18-21, 1928, Chicago.
- INTERNATIONAL RAILWAY SUPPLY MEN'S ASSOCIATION.**—W. J. Dickinson, 189 W. Madison St., Chicago. Meets with International Railway Fuel Association.
- MASTER BOILER MAKERS' ASSOCIATION.**—Harry D. Vought, 26 Cortlandt St., New York. Annual meeting, May 22-25, 1928, Cleveland.
- NATIONAL ASSOCIATION OF RAILROAD TIE PRODUCERS.**—E. A. Morse, vice-president, Potomac Tie & Lumber Co., St. Louis, Mo. Next annual convention, April 24-26, 1928, Arlington Hotel, Hot Springs, Ark.
- NATIONAL ASSOCIATION OF RAILROAD AND UTILITIES COMMISSIONERS.**—James B. Walker, 270 Madison Ave., New York. Annual convention, September, 1928, Glacier National Park, Mont.
- NATIONAL RAILWAY APPLIANCES ASSOCIATION.**—C. W. Kelly, 1014 South Michigan Ave., Chicago. Exhibit at A. R. E. A. convention.
- NATIONAL SAFETY COUNCIL.**—Steam Railroad Section: C. F. Larson, supt. of safety, Missouri Pacific, St. Louis, Mo. Annual congress, Oct. 1, New York.
- NEW ENGLAND RAILROAD CLUB.**—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings 2nd Tuesday in month, excepting June, July, August and September, Copley Plaza Hotel, Boston, Mass.
- NEW YORK RAILROAD CLUB.**—Harry D. Vought, 26 Cortlandt St., New York. Regular meetings, 3rd Friday in month, except June, July and August.
- PACIFIC RAILWAY CLUB.**—W. S. Wollner, 64 Pine St., San Francisco, Cal. Regular meetings 2nd Thursday in month, alternately in San Francisco and Oakland.
- RAILWAY ACCOUNTING OFFICERS ASSOCIATION.**—E. R. Woodson, 1116 Woodward Building, Washington, D. C. Next convention, May 1-4, 1928, Atlanta-Biltmore Hotel, Atlanta, Ga.
- RAILWAY BUSINESS ASSOCIATION.**—Frank W. Noxon, 1406 Packard Bldg., Philadelphia, Pa. Annual meeting, November, 1928, Hotel Commodore, New York.
- RAILWAY CAR DEPARTMENT OFFICERS' ASSOCIATION.**—A. S. Sternberg, Belt Ry. of Chicago, Polk and Dearborn Sts., Chicago. Supply Men's Association.—B. S. Johnson, W. H. Miner, Inc., 209 S. LaSalle St., Chicago.
- RAILWAY CLUB OF PITTSBURGH.**—J. D. Conway, 515 Grandview Ave., Pittsburgh, Pa. Regular meetings, 4th Thursday in each month, except June, July and August, Fort Pitt Hotel, Pittsburgh, Pa.
- RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOCIATION.**—Edward Wray, 9 S. Clinton St., Chicago. Meets with Association of Railway Electrical Engineers.
- RAILWAY EQUIPMENT MANUFACTURERS' ASSOCIATION.**—F. W. Venton, Crane Co., 836 S. Michigan Ave., Chicago. Meets with Traveling Engineers' Association.
- RAILWAY FIRE PROTECTION ASSOCIATION.**—R. R. Hackett, Baltimore & Ohio R. R., Baltimore, Md. Next convention, Oct. 9-11, 1928.
- RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.**—J. D. Conway, 1841 Oliver Bldg., Pittsburgh, Pa. Meets with Mechanical Division and Purchases and Stores Division, American Railway Association, June 20-27.
- RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.**—G. A. Nelson, 30 Church St., New York. Meets with Telegraph and Telephone Section of A. R. A., Division I.
- RAILWAY TREASURY OFFICERS' ASSOCIATION.**—L. W. Cox, 1217 Commercial Trust Bldg., Philadelphia, Pa. Annual meeting, October 11-13, Atlanta-Biltmore Hotel, Atlanta, Ga.
- ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.**—T. F. Donahue, Gen. Supvr. Road, Baltimore & Ohio, Pittsburgh, Pa. Annual convention, September 18-20, 1928, Book-Cadillac Hotel, Detroit, Mich. Exhibit by Track Supply Association.
- ST. LOUIS RAILWAY CLUB.**—B. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings, 2nd Friday in month, except June, July and August.
- SIGNAL APPLIANCE ASSOCIATION.**—F. W. Edmunds, West Nyack (Rockland Co.), N. Y. Meets with A. R. A., Signal Section.
- SOUTHEASTERN CARMEN'S INTERCHANGE ASSOCIATION.**—Clyde Kimball, Inman Shops, Atlanta, Ga. Meets semi-annually.
- SOUTHERN AND SOUTHWESTERN RAILWAY CLUB.**—A. T. Miller, P. O. Box 1205, Atlanta, Ga. Regular meetings, 3rd Thursday in January, March, May, July, September and November, Ansley Hotel, Atlanta.
- SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.**—R. G. Parks, A. B. & A. Ry., Atlanta, Ga.
- TRACK SUPPLY ASSOCIATION.**—A. H. Todd, Positive Rail Anchor Co., 80 E. Jackson Blvd., Chicago. Meets with Roadmasters' and Maintenance of Way Association.
- TRAVELING ENGINEERS ASSOCIATION.**—W. O. Thompson, Gen. Supt. R. S., New York Central, Buffalo, N. Y. Annual convention, October 2-5, 1928, Chicago. Exhibit by Railway Equipment Manufacturers' Association.
- WESTERN RAILWAY CLUB.**—W. J. Dickinson, 189 West Madison St., Chicago. Regular meetings, 3rd Monday each month, except June, July and August.

Traffic

The Illinois Central plans to place its Edgewood cutoff between Edgewood, Ill., and Fulton, Ky., in service early in May.

E. W. Rusk, formerly farm adviser of Macoupin county, Ill., has been appointed agricultural agent of the Chicago & Illinois Midland with headquarters at Springfield, Ill.

The Chesapeake & Ohio announces that its Cincinnati and Chicago sleeping cars are now run to and from Old Point Comfort, Va., the new Chamberlin-Vanderbilt Hotel at that place having been opened on April 5.

The Interstate Commerce Commission has postponed to June 26 the effective date of its order of November 8, 1927, in the southeastern sugar investigation case, in which it prescribed an extensive revision of sugar rates in and to and from the Southeast.

The Cape Cod Canal was taken over by the United States Government on March 31, and vessels now pass through without paying toll. The act of Congress purchasing the canal was passed on January 21, 1927, but payment was not made until recently.

The Chicago, Burlington & Quincy plans to add the Black Hills of South Dakota to its general tourist schedules. Tourists to the Pacific Coast, the Yellowstone and the Glacier National parks will be privileged to visit the Black Hills as a side trip, two days being spent in personally conducted tours, with a one-night stopover in Deadwood, the heart of the hills.

A transfer steamer used by the Louisiana Railroad and Navigation Company in its service across the Mississippi river and on Old river between Angola, La., and Naples, sank in Old river near Torras on March 21 with 14 cars of freight. Service was interrupted for a short time only, as another boat which was being used in the construction of a bridge at Simmesport, was placed in operation between Angola and Naples.

The New York Central has put in service on its line between Lansing, Mich., and Hillsdale, a Brill-Westinghouse gas-electric passenger car, one of eight now being delivered by the builders. Other cars are to be used between Jackson, Mich., and Fort Wayne, Ind.; Adrian, Mich., and Monroe; Lockport, N. Y., and Suspension Bridge; Watertown, N. Y., and Cape Vincent; Kingston, N. Y., and Montgomery.

The American Railway Express Company announces that its air transportation service has been extended, in connection with the Northwest Airways, to St. Paul and Minneapolis; and also that connections are made with the Embury-Riddle

Air Service between Chicago and Cincinnati. Shipments leaving New York at 7 p. m. are scheduled to reach St. Paul at 11:30 the next morning. The rate from New York to Minneapolis and St. Paul is \$2 a pound, the minimum charge being the rate for one pound.

The Interstate Commerce Commission has postponed until April 19 the effective date of its recent order in which it required the cancellation of tariffs filed by the railroads serving the "southern" district coal fields proposing a reduction of 20 cents a ton in rates on lake cargo coal. The southern coal operators had applied to the federal court at Charleston, W. Va., for an injunction order and the railroads agreed to voluntarily postpone the effective date of the tariffs involved pending a decision of the court.

Divisions accorded the Ulster & Delaware by its connecting lines out of joint passenger fares and joint rates on milk and cream were found "unjust, unreasonable and inequitable, but not unjustly discriminatory or unduly prejudicial," in a decision made public by the Interstate Commerce Commission on March 19. Divisions to be observed for the future are prescribed on passenger traffic and milk and cream but the divisions and allowances on bituminous coal were found not unreasonable, unjustly discriminatory or unduly prejudicial.

The second annual Easter pilgrimage of Roman Catholics from Jersey City, N. J., to Canadian shrines scheduled to leave New York by the New York Central on Sunday afternoon, April 8, calls for the use of 55 sleeping cars and 10 dining cars, to be sent out in five special trains, the party numbering about 1500 persons. From Troy, N. Y., the trains will go to Quebec over the Delaware & Hudson and the Canadian Pacific, and on the return will be run through Montreal, arriving in New York on Saturday, April 14.

Bill to Liberalize Credit for Freight Charges

A bill to amend the provision of the interstate commerce act which prohibits railroads from extending credit for freight charges except under rules and regulations prescribed by the commission has been introduced in Congress by Representative Brigham, of Vermont, as H. R. 12,578. It would insert a proviso that the law shall not be construed to prohibit a carrier from extending credit (under bonds or other adequate protection) for not more than seven days, nor to prohibit the extension of credit on freight transported for the United States, or any department, agency or bureau thereof, or any state, territory or political subdivision thereof, or the District of Columbia. The commission's regulations at present provide for 96 hours credit.

S. P. Opens New Fruit and Vegetable Terminal

The Southern Pacific opened a new fruit and vegetable terminal at New Orleans, La., in the square bounded by Poydras, Lafayette, South Front and Delta streets on April 1. The structure is of concrete, steel and brick throughout while the roof is of corrugated hard asbestos. The floor is of concrete and is of the same height as the car floor and allows cars to be unloaded and wagons and trucks to be loaded with minimum effort. The warehouse building is 370 ft. long by 53 ft. wide, the second story running the entire width of the building for a distance of 100 ft. This upper story is being used as a fruit and vegetable auction room.

Old tracks have been rearranged and new tracks built adjacent to the new terminal, which has increased the track capacity from 35 cars to 53 cars.

Bills to Restrict I. C. C. Minimum Rate Power

Bills to restrict the power of the Interstate Commerce Commission to prescribe minimum rates were introduced in Congress on March 29 by Senator Barkley, of Kentucky, S. 3832, and Representative Moore, of Virginia, H. R. 12,527. They issued a joint statement saying that the bill was introduced because of the decision of the commission ordering the railroads serving the southern district coal fields not to reduce their rates on lake cargo coal and that "the manner in which the commission has been exercising its power has resulted, and will continue to result, in the commission becoming the arbiter of business prosperity in different sections of the country." The statement adds that the power has been exercised not only in the coal business, but has been applied to fruits, grain, lumber and other important commodities, and that the authors seek to withdraw the power, as provided in the Transportation Act, 1920, to fix minimum rates, "except where it involves the protection of a water line which might otherwise be driven out of existence by the competition of a rail carrier."

Freight Robberies Smallest in Eight Years

The payments made by the railroads of the country in 1927 for loss of and damage to freight were slightly larger than in the preceding year, as reported in the *Railway Age* of March 31, page 755. Losses entered under the head of robberies were, however, about 12 per cent less than in 1926, and the Protective Section of the American Railway Association calls attention to the fact that robberies have been reduced every year since 1920 when the enormous total of \$11,575,811 was recorded, the heaviest aggregate in the history of American railroads.

The robbery losses in 1927, amounted to \$1,151,136 or \$163,365 less than in 1926. The constant reduction since 1920, has been accomplished mainly because of the

more efficient personnel in the railway police forces; closer co-operation on the part of the railroads with each other and between railway police and state, county and city authorities. Train riders have been placed on trains carrying particularly valuable shipments.

Trans-Missouri Shippers' Board Meets

Co-operation between shippers and railroads of the middle west, through the activities of the Trans-Missouri-Kansas Shippers' Advisory Board, has overcome many of the transportation problems that a few years ago hampered the movement of all products in this and adjoining districts, according to reports presented at the fifth annual meeting of the Board at Kansas City, Mo., on March 21. Surveys made by the commodity committees indicate that general business conditions this next quarter—April, May and June—will be about the same as during the corresponding period a year ago.

R. W. Brown, president, Missouri Farm Bureau, Jefferson City, Mo., addressed the assembly on "Transportation in Relation to Agriculture." Harry G. Taylor, manager, public relations section, car service division, A. R. A., and former Chairman of the Nebraska Railroad Commission outlined the present policies of the railroads in handling matters of mutual concern with the general shipping public. These boards should be considered in the light of "Transportation Insurance."

Shipping representatives report transportation service entirely satisfactory; as near perfect as can be reasonably expected. Trade reports, based upon actual surveys, of each line of industry indicate that for the second quarter the freight movements of 13 of the 25 leading lines of industry, will show increases ranging from 1 to 25 per cent over a year ago, while the remaining 12 anticipate decreases of 2 to 39 per cent. The total car requirements will be 2.6 per cent less than for the same months last year.

Experimental Low Rates on Maritime Coal

As a complement to the steps taken recently in regard to encouragement to the movement of Alberta coal to Ontario, the Canadian government last week end announced a similar arrangement for the movement of Maritime coal to Ontario and Quebec. It was announced by J. L. Ralston, Nova Scotia's representative in the Federal cabinet at Ottawa, that the plan would be inaugurated on April 15, and it would be divided into two parts:

1.—Transportation of coal by rail during the season when navigation on the St. Lawrence is closed:

2.—Rail transportation westward from Montreal of water borne coal.

With regard to the first, a minimum experimental rate of \$3 a ton is to be established during the period of the test movement of coal mined in Nova Scotia, and a maximum experimental rate of \$2.10 a ton for New Brunswick coal. These rates apply to coal transported wholly by

rail to points in the province of Quebec and, says the order-in-council, "at such seasons of the year as, in the opinion of the minister of mines, it is not practicable to ship coal from Nova Scotia to St. Lawrence ports by vessel."

The new test rate is a reduction of \$1.60 a ton from the rate on rail transported coal which was in effect prior to the 20 per cent freight rate reduction that was made effective with the government's acceptance of the recommendations of the Duncan Report. The reduction effected by the Duncan Report brought the coal rate to Montreal down from \$4.60 a ton to \$3.80, and the government has lopped 80 cents from this in establishing the new experimental rate.

With respect to the second phase of the test, that of water transportation during the open season in the St. Lawrence the order-in-council provides that coal mined in "Eastern Canada and carried by vessel to St. Lawrence ports and thence trans-shipped by the railways to points in the provinces of Quebec and Ontario" be carried from the point of trans-shipment at a temporary rate of one-fifth of a cent per ton mile less than the rate "which would otherwise be applicable for the railway movements from such St. Lawrence ports." It is provided that this reduction shall not exceed 75 cents per ton.

Eastern Bituminous Coal Rates Ordered Reduced

A readjustment of rates on bituminous coal from mines in Pennsylvania, Maryland, Virginia, West Virginia and Kentucky to destinations in New England and the middle Atlantic states was ordered by the Interstate Commerce Commission in a supplemental report and order made public on March 31 in the eastern bituminous coal investigation, which requires that joint rates be permanently maintained from the southern district mines to New England. Such rates were temporarily established during the anthracite coal strike, expiring by limitation on April 30, 1926.

While many of the rates are found

reasonable, reductions of 15 cents a ton are made in many cases. Rates from mines in Pennsylvania, Maryland and northern West Virginia to destinations in New England and the middle Atlantic states for track delivery are found not unreasonable or otherwise unlawful except to Washington, D. C., and Baltimore, Md., and intermediate destinations and to certain destinations in New England. Rates from the Cumberland-Piedmont and Meyersdale districts to Washington and Baltimore and from the Clearfield district to Frederick, Md., and points intermediate to those destinations, for track delivery, and to Baltimore for delivery inside the harbor, were found unreasonable. Joint rates from the Clearfield, Cumberland-Piedmont and Meyersdale districts to all destinations in New England exceeding \$3.72 per ton, were found unreasonable except to certain water-competitive destinations. Tidewater rates from mines in Pennsylvania, Maryland and northern West Virginia to New York, Philadelphia and Baltimore except for delivery inside the harbor, and from mines in Virginia, southern West Virginia, and eastern Kentucky to Hampton Roads were found not unreasonable or otherwise unlawful. Rates on prepared sizes from the Kanawha-Coal River district in West Virginia to destinations in northern New York were found unreasonable. Rates on run-of-mine and prepared sizes from the low-volatile and high-volatile districts of Virginia, West Virginia and eastern Kentucky, and on semi-anthracite from mines in Virginia, to all destinations in New England except on the Bangor & Aroostook and to certain destinations in the middle Atlantic states, were found unreasonable and preferential.

Commissioner Woodlock, in a separate opinion concurring in part says that the prescription of a \$2.71 rate, instead of \$2.84 to Baltimore and Washington "will probably result in a general disruption of the eastbound rate structure and a general reduction of rates to destinations in trunk-line territory" and that the facts set forth in the report do not, in his opinion, justify conclusions which may have such a far-reaching result.

* * *



Crookston, Minn., Conductors Opening Great Northern Into Devil's Lake, N. D., June 17, 1883

Foreign

One-Man Electric Locomotives Planned for Swiss Federal Railways

One-man electric locomotives are planned for the Swiss Federal Railways. Assistant Trade Commissioner Kenneth M. Hill, Berne, Switzerland, reports to the Department of Commerce. Experiments with the one-man cab last year are said to have been successful, with the result that the Federal Railways expect to install about 30 locomotives of that type about the middle of May. The new locomotives are hoped by the railways to save them three to three and a half million francs annually or about \$600,000.

German Purchasing Officer Accused

A purchasing officer of the German State Railway has been accused, according to press dispatches from Berlin, of dishonesty in the conduct of his duties. The accused, it is asserted, invented a new device which he patented, but, instead of turning this over to the railway as the law requires, sold it to a supply manufacturer and received a commission on all sales made by this manufacturer to the railway. An investigation by the public prosecutor is under way and it is said to be not unlikely that others may be implicated.

Locomotive Tender with Corridor

The London & North Eastern will construct a locomotive tender provided with a corridor to facilitate communication between the cab and the train which it pulls. The announcement has caused considerable speculation in the British press regarding the possibility of longer non-stop train runs. There is one run now, London to Carlisle on the London, Midland & Scottish, of 300 miles without

any stops, either for traffic or service. Running further than this without changing engine crews is considered unlikely, consequently the provision of the corridor, which would provide for relief without the necessity of a stop, has aroused wide public interest.

This interest is reflected in the accompanying cartoon from the British railway labor paper, *Railway Review*, which gives an idea of accommodations which relief enginemen on these long runs may some day expect to have provided for them.

Naples-Rome "Direttissima" Opened

The most direct line between Naples and Rome, or the "Direttissima", 135 miles long, has been opened for service. Although work on this line was begun in 1905, nearly half of it has been done since 1923, following the inception of the Fascist regime. The new line was laid out in as straight a line as possible. Even though difficult country is traversed, 109 miles of it are without curves. There are 21 miles of tunnels, the longest being that through Monte Orso of about 4 1/4 miles, according to Modern Transport, (London).

There are no grade crossings on the whole line, a fact which accounts for the number of bridges and viaducts which had to be constructed. In all there are 47 structures of this nature and over 600 having a span of less than 32 ft. 10 in. The line is ballasted with stone 2 ft. 1 3/4 in. deep, and is laid with 39 ft. 4 in. rails weighing about 87.5 lb. per yd.

Work is in progress on the installation of an automatic block system and a three-phase power supply of 5,000 volts has been erected for that purpose. In due time the whole line will be electrified, but at present only the section from Villa Literno to Naples has been converted. In the section between Villa Literno and Naples the current is supplied by a third rail, but the line from Villa Literno to Rome will be operated on the overhead contact system.

The new line reduces the hitherto existing railway distance between Rome and Naples by at least 20 miles, and the time taken to make the trip in greater proportion. The route follows for the most part that of the ancient Appian Way, running nearer to the coast than the present route via Frosinone, Cassino and Capua.

Leaving the Rome terminal, the line skirts the Alban hills and the Lepini mountains. It then traverses the Pontine district from end to end. Leaving the Pontine marshes, the line penetrates the Ausonian mountains by the tunnel of Monte Orso. It crosses the plain of Fondi, passes through Formio on the coast, and crosses the river Garigliano on a steel viaduct.

The line enters the suburbs of Naples at Fuorigrotta, passes under the city by a tunnel three miles long, and ends at Central Station. There are altogether 17 stations. At present the journey from Rome to Naples is accomplished in 2 hours 50 minutes, but this time, it is expected, will be considerably reduced when electrification of the whole system is completed.

Here and There Abroad

Items of foreign railway news of interest, as reported to the Bureau of Foreign and Domestic Commerce of the United States Department of Commerce, include the following:

Express passenger service has been resumed on the Tientsin-Pukow railway in China between Pukow and Hsuehfu, the junction of the Lung-Hai line. The latter railway has been repaired and traffic on the whole line was resumed February 28. There has been a temporary reduction in freight service on Shanghai Hangchow line owing to shortage of locomotives.

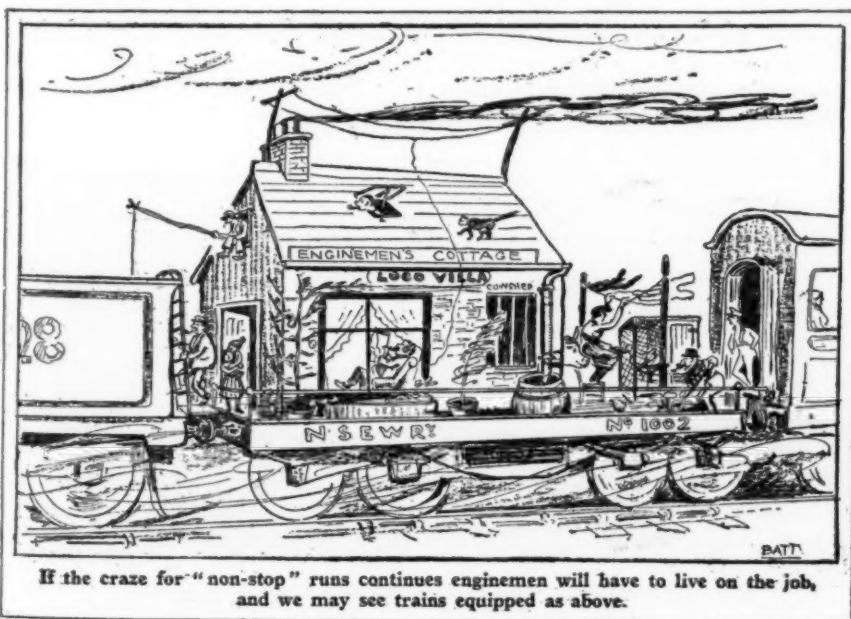
Net returns of the Finnish State Railways for the first 10 months of 1927 amounted to approximately \$3,800,000.

Representatives of the Latvian railway administration, the Ministry of Finance and the Ministry of Agriculture at a recent conference decided to grant the same preferential freight rates to freight for export as are granted transit freight. With the exception of butter, which is as a rule moved in refrigerator cars attached to passenger trains, this ruling will lower freights on all commodities for export.

The Lithuanian Ministry of Communications has increased the rates for transportation of passengers, baggage and freight, on all railways in Lithuania, effective April 1.

J. R. Moore, assistant general manager of railways at Durban, South Africa, has been appointed to succeed Sir William Hay as general manager of the South African Railways and Harbors, with headquarters at Johannesburg.

The Danish State Railways operated at a net deficit of about \$5,287,000, during the nine months ended December 31, 1927, as compared with \$3,137,000 during the same period of 1926. The decline in



If the craze for "non-stop" runs continues enginemen will have to live on the job, and we may see trains equipped as above.

revenue is laid to competition met from coast-wise shipping and from motor vehicles.

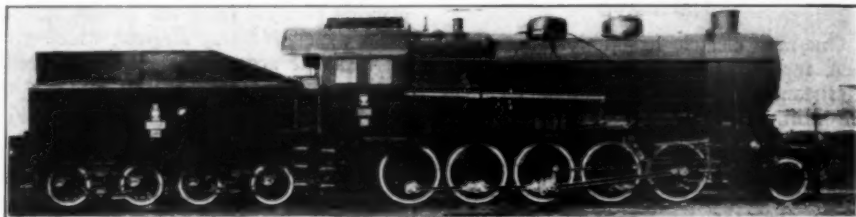
Polish Railways Prosper

The Polish State Railways are prospering as an independent, self-governing, self-financing unit under the general supervision of the Ministry of Communications, under which regime they have been operating since 1924. The railway budget is no longer included in the general budget. At the end of its first year of separate existence the Polish State Railways showed a profit of 71,500,000 zlotys* which was reinvested in the reconstruction program.

Contracts have been let with foreign and domestic firms to supply the railways for a ten-year period, 1921-1931, with 2,590 locomotives, 7,800 passenger cars and 70,400 freight cars. On January 1, 1927, Polish firms had delivered 208 locomotives, 496 passenger cars and 17,584 freight cars. Foreign firms delivered 667 locomotives, 237 passenger cars and 15,400 freight cars. On the same date the rolling stock of the

In the eastern part of Poland where the transit system is weakest, plans have been made to build 1,000 miles of new line of which 200 miles will be built by the government and the remainder by private interests. The Kalety-Podzamcze line has been opened recently to facilitate the ship-

mines. The state has acted in conjunction with the representatives of various industries in making important amendments and changes in railway tariffs to stimulate domestic production and facilitate the movement of foodstuffs, oils and chemicals to surrounding countries.



A Decapod on the Polish State Railways

ment of coal to industrial centers and abroad; twelve freight trains are now being operated.

Direct communication between Germany and Russia across Polish territory has been established.

During the past year the State has

The average daily loading of 15-ton cars destined for home stations amounted to 8,609 in 1925. Domestic freight during the entire year amounted to 47,000,000 tons.

In the third quarter of 1927 average daily loadings were 10,875. Tonnage based on these figures alone shows 59,500,000 tons of domestic freight for 1927. In other words, increased railway facilities contributed a 26.5 per cent increase last year over 1925.

The center of the economic area of Poland is around the frontier zone of the former Polish partitionary powers. Through political design, communicating lines in these regions were originally built not for the advancement of local industries, but for strategical purposes in time of war. Here the state has set to work to reconstruct lines that will convey Polish products to the centers of consumption and to facilitate their sale and export abroad.

Concessions have been granted private companies, financed by American, French and British capital, to build five new lines totalling 581 miles in length. Two lines have been practically completed, the Warszawa-Zyrardow line and a railway in the Dabrowa mine district.

Other proposed community lines will unite upper Silesia with the shipping ports of Gdynia, Danzig and Tczew, and the main industrial center will be united with the eastern parts of the country.



Mail Car Built in Poland by Lilpop, Rau & Lowenstein, Ltd.

State railways comprised 5,236 locomotives, 11,447 passenger cars and 146,157 freight cars. These figures included not only the stock taken over at the end of the war, but also 68 locomotives and 13,304 freight cars temporarily borrowed from foreign railways.

Poland achieved the final step in its financial and economic stabilization last year. The \$72,000,000 stabilization loan was an international recognition of its credit standing. Foreign trade increased, the currency remained stable, major industries showed increased production and the national budget yielded a surplus.

This acted as an impetus to the railway reconstruction program. The net gain of the State railways for 1926 amounted to 34,865 zlotys, all of which was reinvested in capital improvements. The budget for 1927 and 1928 estimates expenditures to be 1,014,990,000 zlotys and revenues 1,042,299,000 zlotys.

* The zloty is now stabilized at 11.22 cents.

reached agreements with Rumanian, Czechoslovakian, Austrian and Hungarian railways; one of the results of these agreements has been the opening of Italian markets to the product of Polish coal



A Privately Owned Beer Car on the Polish State Railways

Equipment and Supplies

Locomotives

THE TEXAS & PACIFIC has issued an inquiry for 15 locomotives of the 2-10-4 type and 5 of the Mountain type.

THE ATCHISON, TOPEKA & SANTA FE has ordered 15 locomotive tenders from the Baldwin Locomotive Works. Inquiry for this equipment was reported in the *Railway Age* of March 17.

THE DOMINION COAL COMPANY has ordered 1 Mogul type locomotive and 1 Mikado type locomotive from the American Locomotive Company, Montreal Works.

THE AKRON, CANTON & YOUNGSTOWN has ordered 2 Mikado type locomotives from the Lima Locomotive Works. Inquiry for this equipment was reported in the *Railway Age* of March 10.

THE NEW YORK, ONTARIO & WESTERN'S purchase of new locomotives has been deferred to some later date. Inquiry for 6 locomotives was reported in the *Railway Age* of January 14.

Freight Cars

THE PERE MARQUETTE is inquiring for 20 steel air-dump cars.

THE CUDAHY PACKING COMPANY is inquiring for 100 underframes for refrigerator cars.

THE EGYPTIAN STATE RAILWAYS are inquiring through the car builders for 320 low side gondola cars of about 10 tons' capacity.

THE SOUTHERN PACIFIC is inquiring for 500 flat cars and 50 gondola cars of 50 tons' capacity. This is in addition to the inquiry for 250 automobile cars and 175 tank cars reported in the *Railway Age* of March 17.

Passenger Cars

THE AMERICAN POTASH & CHEMICAL CORPORATION is inquiring for one passenger and baggage car.

THE UNION PACIFIC has placed an order with the Electro-Motive Company for 4 Model 120 275 hp. power plants, for rail motor cars, the car bodies to be built by the Pullman Car & Manufacturing Corporation.

THE CHICAGO & NORTH WESTERN has placed an order with the Electro-Motive Company for 5 Model 120 275 hp. power plants, for rail motor cars, the car bodies to be built by The Pullman Car & Manufacturing Corporation.

Iron and Steel

THE ILLINOIS MIDLAND has ordered 550 tons of structural steel for bridge work from the American Bridge Company.

Machinery and Tools

THE READING has ordered two 225-ton cranes and one 50-ton crane, from the Niles-Bement-Pond Company.

Signaling

THE LOUISVILLE & NASHVILLE has ordered, from the Union Switch & Signal Company, material for automatic block signals between Anchorage, Ky., and Lexington, 83 miles. The order calls for 145 single-arm, style T-2 semaphores and other material.

THE ST. LOUIS-SAN FRANCISCO has ordered, from the Union Switch & Signal Company, material for automatic block signals between Thayer, Mo., and Black Rock, Ark., 50 miles. The order includes 89 single-arm, style S semaphores, and other material.

THE CHICAGO & ALTON has placed an order with the National Safety Appliance Company for 51 track magnets for automatic train control, together with equipment for 13 locomotives including acknowledging valves. This apparatus is sufficient to complete the Alton's train control installation from Bloomington, Ill., to Chicago, as required by order of the Interstate Commerce Commission.

688 Working Levers for New Buffalo Station

The New York Central has ordered from the General Railway Signal Company, material for electric interlocking machines to operate the switches and signals at its new station to be built at Buffalo, N. Y.; a 512-lever machine with 380 working levers and a 416-lever machine with 308 working levers; the whole believed to be the largest interlocking ever constructed. The larger machine is to have more working levers than any other in the world, so far as known, and the smaller is exceeded in size only by the 400-lever machine at the Grand Central Terminal, New York City, which was furnished by the G. R. S.

These two machines will control all of the tracks entering either end of the new station. The plant is to be signaled throughout for low-speed movements, with color-light dwarf signals.

The order includes 367 signal mechanisms; 236 switch machines, model 4-A; 277 switch boxes, 108 transformers, 1081 relays and other material.

Miscellaneous

THE PENNSYLVANIA will receive bids until 12 o'clock noon, April 10, at Philadelphia, Pa., for steel sheets; boiler tubes; axles, crossings, frogs and also for slip switches.

Supply Trade

William B. Ross, manager of sales of Edwin S. Woods & Company, Chicago, has been elected vice-president in charge of sales.

The Thomas L. Mount Company, New York, has opened an office at 214 Harrison building, Philadelphia, Pa., in charge of P. M. Etters.

The S. G. Taylor Chain Company's general offices are now located with its plant in Hamond, Ind. The company maintains a sales office in Chicago.

The Chicago Bridge & Iron Works, Chicago, plans the construction of a 100-ft. by 200-ft. addition to its plant, to cost \$20,000.

The American Rolling Mill Company has moved its Chicago district sales office from 122 South Michigan Boulevard to 310 South Michigan Boulevard.

F. P. Walsh has been appointed manager of the crane department and R. H. Moore, manager of the foundry equipment department of the Whiting Corporation, Harvey, Ill.

The Foot Brothers Gear & Machine Company, Chicago has appointed the Mideke Supply Company, Oklahoma City, Okla., its representative in Oklahoma City and vicinity.

The Crane Company, Chicago plans the construction of a one and one-half story factory branch and distributing plant at Tucson, Ariz., to cost \$45,000 for equipment.

W. W. Glosser, vice-president and general sales manager of the Verona Tool Works, Pittsburgh, Pa., has resigned to enter the electrical department of Hubbard & Company, Pittsburgh, in charge of the New York office.

The American Cable Company, Inc., has given a license to the Hazard Wire Rope Company, Wilkes-Barre, Pa., to manufacture wire rope known under the trademark Tru-Lay preformed wire rope and fittings known as Tru-Loc processed fittings.

H. L. McCauley, assistant district sales manager of the Inland Steel Company with headquarters at Milwaukee, Wis., has been promoted to district sales manager with the same headquarters to succeed C. M. Esterly, resigned, and will be succeeded by M. E. Gregg, assistant district sales manager with headquarters in St. Paul, Min.

Frank H. Maloney, co-manager of the San Francisco office of the Truscon Steel Company, Youngstown, Ohio, has been promoted to district manager with headquarters at St. Louis, Mo. Richard W. Maloney, representative at San Francisco has been transferred to St. Louis as representative for Southern

Illinois. The St. Louis office has been moved from the Syndicate Trust building to 1304 Ambassador building.

Justin G. Smeby has been appointed welding engineer at the South Philadelphia works of the **Westinghouse Electric & Manufacturing Company**. Mr. Smeby was born at Climax, Minn., in 1897, and graduated in 1922 with the degree of B. S. in mechanical engineering from the University of North Dakota. He then entered the apprenticeship course at the South Philadelphia plant, later being transferred to the tool design division. In 1925 he entered the turbine engineering department remaining in that department until his recent appointment as welding engineer.

H. J. Hair, until recently sales engineer, handling railroad sales for the **Whiting Corporation**, has been appointed manager of railroad sales of **The Watson-Stillman Company**, with his headquarters at the main office, New York. Since his graduation as a mechanical engineer from **Purdue University** he has held various positions on railroads, and in the railroad supply field, including that of mechanical engineer of the **Baltimore & Ohio South-Western** before its consolidation with the **Baltimore & Ohio System** and as district manager in the **Pittsburgh territory** for **Manning, Maxwell & Moore Inc.**

Timken Roller Bearing Company

The annual report for the year ending December 31, 1927 shows a net profit of \$9,554,397 after federal taxes. Manufacturing profit totaled \$14,077,519 after subtracting all manufacturing costs including materials, labor, factory expense and depreciation in the amount of \$918,301. Dividends paid during the year amounted to \$6,004,410. The surplus as of December 31, amounted to \$25,679,340 as compared with \$22,109,901 in 1926.

Part of President **H. H. Timken's** statement to stockholders refers to the railroad sales as follows:

More than 100 railroads are now using **Timken bearings** on passenger cars, Pullmans, freight cars, locomotive tenders, gasoline-electric coaches and gasoline-mechanical coaches. Many of these railroads have only a few cars on **Timken bearings** for experimental and testing purposes, but we are pleased to report that the 12 completely equipped **Timken trains** on the **Chicago, Milwaukee, St. Paul & Pacific** have been in service about a year, and the bearing performance has been very satisfactory. The **Milwaukee road** has had a very substantial increase in passenger traffic on these trains since the **Timken bearing equipment** has been placed in service. **Timken bearings** on 60 passenger coaches on the **Pennsylvania Railroad** are also operating very satisfactorily. While our sales activities to date have been chiefly confined to railroad passenger car equipment, we will, in the near future, actively enter the freight car field, and our sales of railroad bearings, although relatively small in 1927, should be more than doubled in 1928.

Obituary

Charles P. Howard, president of **James L. Howard & Co.**, Hartford, Conn., died on March 6, at the age of 75.

Bruce P. Owens, vice-president of the **Central Valve Manufacturing Company**, formerly the **O'Malley-Beare Valve Cor-**

poration, died at his home in Wilmette, Ill., on March 30. He was born in Marysville, Ky., on March 12, 1883 and in 1901 entered the employ of the **J. W. Barrett Brass Foundry Company**, St. Louis, Mo. This company was later



Bruce P. Owens

taken over by the **Hewitt Manufacturing Company**, which later became a part of the **Magnus Company, Inc.** In 1910 he was appointed service engineer of the latter company and in 1917 was promoted to assistant to the vice-president. He held the latter position until February 1922 when he was promoted to sales manager. In September, 1926 he was elected vice-president of the **O'Malley-Beare Valve Corporation**, which position he held until his death.

Trade Publications

PERMANENT HIGHWAY CONSTRUCTION.—The **Locomotive Finished Material Company**, Atchinson, Kan., has issued a four-page leaflet showing the essential features of its form of highway crossing construction with numerous illustrations of installations on a number of railways.

THE QUIGLEY FURNACE SPECIALTIES COMPANY, New York, has issued a four-page bulletin illustrating and describing in detail its new **Quigley Bitumen gun** for applying hot or cold materials in coating or waterproofing metal, concrete, stone, brick, or other substances in roofing, foundation of wall construction.

"ELESOCOOPERATION."—This is the title of an interesting 16-page brochure being distributed by the **Superheater Company**, 17 East 42nd street, New York, outlining the organization and engineering service of the company. It briefly describes the **Elesco stationary power plant superheater** and the progress in **Elesco served power plants**. A chart shows the expected or realized performance of the superheaters at the **Hell Gate** and **East River stations** of the **United Electric Light & Power Company** and the **New York Edison Company**, where steadily increasing capacities are demanded from single boiler units.

THE CHICAGO & WESTERN INDIANA has ordered from the **Union Switch & Signal Company** a mechanical interlocking, 32 levers, for 81st street, Chicago.

Construction

ALABAMA, TENNESSEE & NORTHERN.—A contract for the construction of a freight station and agency office building at Mobile, Ala., at a cost of \$71,000 has been let to **L. W. Hancock**, Louisville, Ky. Construction will be of concrete, brick and steel, with the freight shed 400 ft. long and outside dimensions of the agency office section of the building 60 ft. by 100 ft. The station will occupy a site leased by the railroad from the **Alabama State Docks commission**.

ATCHISON, TOPEKA & SANTA FE.—A contract for the construction of a one-story machine and boiler shop at Guthrie, Okla., having outside dimensions of 42 ft. by 150 ft. has been awarded to the **H. W. Underhill Construction Company**, Wichita, Kan.

ATCHISON, TOPEKA & SANTA FE.—A contract for the construction of two yard units at Emporia, Kan., has been let to the **List & Bagwell Construction Co.**, Kansas City, Mo. This project involves the excavation of about 600,000 cu. yd. of earth and includes the grading of the site for new stock yards and sheep barns.

CANADIAN PACIFIC.—A bill has passed the House of Commons of Canada authorizing this company to construct an extension from **Nipawin, Sask.**, west along the **Saskatchewan river** about 85 miles to **Prince Albert**. This line will involve the construction of a bridge over the **Saskatchewan river** at a cost of about \$1,500,000. Under the terms of the bill construction must be started within two years and the line must be open for traffic within five years.

CHICAGO, BURLINGTON & QUINCY.—A contract for the construction of a coaling station of 150-ton capacity at **Stockholm, Wis.**, has been let to **Fairbanks, Morse & Co.**, Chicago. Company forces will handle the installation of a water station at the same point. The general contract has been awarded to the **Kritzer Construction Company**, Chicago, for the construction of a power plant at **Fourteenth and Canal streets, Chicago**. A smoke stack 185 ft. high in connection with the power plant will be constructed by the **Heine Chimney Company**, Chicago. The total expenditure involved in this project, including machinery and equipment, will be about \$200,000.

DENVER & RIO GRANDE WESTERN.—A contract for the enlargement of three tunnels in **La Veta Pass** between **Pueblo, Colo.**, and **Alamosa**, has been awarded to **Platt Rogers, Inc.**, Pueblo, at a cost of about \$60,000.

GREAT NORTHERN.—A contract for the construction of a one-story combined passenger and freight station at **Klamath Falls, Ore.**, has been let to **James Quinn**, Portland, Ore. Company forces have started the reconstruction of the **Shevlin-Hixon logging railroad** which will connect the terminus of the **Oregon Trunk** at

Bend, Ore., with the new extension into Chemult, Ore. The Shevlin-Hixon line is about 25 miles long. It is planned to inaugurate regular freight and passenger service between Klamath Falls and the Spokane, Portland & Seattle at Wishram, Wash., about May 1. A contract for the construction of a round house at Klamath Falls has been let to Dunn & Baker and a contract for the construction of a steel draw bridge over Ewauna lake, near Klamath Falls, has been awarded to the Sawmill Engineering & Construction Co.

MISSOURI PACIFIC.—A contract for the realignment of track at various points between Nepesta, Colo., and Sugar City, 33 miles, and for raising the track at a number of points between La Crosse, Kan., and Hoisington, 32 miles, has been let to Arthur and Allen, Pueblo, Colo. The total cost of the work, including the relaying of rail, is expected to be about \$325,000.

MISSOURI PACIFIC.—The city of St. Louis (Mo.) and this railway have reached an agreement under which they will share equally the \$149,200 cost of the construction of a viaduct to carry the Missouri Pacific tracks over Wellington avenue in St. Louis.

PENNSYLVANIA-LEHIGH VALLEY.—These roads have advertised for bids for construction of the superstructure of their new Newark Bay bridge. Cost of this part of the \$7,500,000 project will be about \$1,000,000.

READING.—This road plans the construction of a large commercial building at Philadelphia at a cost of \$3,000,000. It will be a 10-story building having an area of 1,250,000 sq. ft., or approximately 30 acres of floor space. It will be located on

Broad street between Callowhill and Noble streets, and the Callowhill street freight station will remain on the track level there. Improved freight facilities will give the tracks an unloading capacity of 150 cars a day. The freight station will be entirely underground and will be the only one of its character in existence, according to officers of the Reading.

SOUTHERN PACIFIC (Pacific Lines).—This company plans the rearrangement of track facilities at the passenger station and coach yard at Eugene, Ore., at a cost of about \$70,000.

Railway Finance

AKRON, CANTON & YOUNGSTOWN.—*Bonds.*—The Interstate Commerce Commission has authorized this company to issue \$760,000 general and refunding mortgage 5½ per cent bonds, series B, \$500,000 of which are to be sold at not less than 98 to Faxon, Gade & Co., Inc., of Boston, Mass., and the proceeds used for additions and betterments. The remaining \$260,000 are to be held by the carrier subject to the further order of the commission. The carrier also desires to issue \$190,000 bonds in respect of the acquisition of 61 acres of land for an out-bound freight yard near Akron, O., but pending receipt of further information action is deferred on this part of the application.

ATCHISON, TOPEKA & SANTA FE.—*On 10 Per Cent Dividend Basis.*—Directors have declared a quarterly dividend of \$2.50 a share, payable on June 1 to stockholders of record May 4. This has the effect of putting the Santa Fe's dividends on the annual basis of \$10. a share, while hitherto it has been paying \$7. regular dividends and \$3 extra. The company paid 6 per cent dividends until March, 1925 when the rate was increased to 7 per cent. The extra dividend of 3 per cent has been paid since the first quarter of 1927.

ATLANTIC COAST LINE.—*Bonds Authorized.*—The Interstate Commerce Commission has authorized this company to procure the authentication and delivery of \$73,237,000 of general unified mortgage 50-year series A 4½ per cent gold bonds in exchange for temporary general unified mortgage bonds and due bills for such bonds heretofore certified and delivered to the applicant in respect of capital expenditures. The company's application was dismissed in so far as it sought authority to nominally issue \$1,359,000 of general unified mortgage bonds now held in the company's treasury.

BALTIMORE, CHESAPEAKE & ATLANTIC.—*Foreclosure Sale.*—This company was sold at foreclosure at Baltimore on March 29,

and was purchased by the Pennsylvania Railroad for \$1,000,000. The property includes 88 miles of railroad owned, in addition to which the company also has trackage rights for an additional 43 miles over lines of the Pennsylvania. Included also, are 11 steamboats. This company has outstanding \$1,000,000 of common stock, \$1,500,000 5 per cent cumulative preferred and \$1,250,000 5 per cent first mortgage bonds. All of the common stock, and all but a few shares of the preferred, are owned by the Pennsylvania or its subsidiaries. No dividends have been paid on the preferred since 1912 and the company has been unable to pay interest on its bonds since 1921. The Pennsylvania agreed to purchase the coupons on these bonds due March 1, 1921 to March 1, 1926, but announced in July, 1926 that it was not willing to purchase any further coupons.

BALTIMORE & OHIO.—*Abandonment.*—The Interstate Commerce Commission has issued a certificate authorizing this company to abandon 2.5 miles of its Patuxent branch which extends from the carrier's Washington-Baltimore line at Patuxent Branch Switch to Guilford in Howard County, Md.

BANGOR & AROOSTOOK.—*Annual Report.*—The annual report for 1926 shows net income after interest and other charges of \$1,139,723, equivalent for the 7 per cent dividends on the preferred stock, to 8.41 per share on the outstanding common stock. Net income in 1926 was \$914,326, or \$8.68 per share. Selected items from the income statement follow:

BANGOR & AROOSTOOK		
	1927	1926
Average mileage operated	613.88	615.44
RAILWAY OPERATING REVENUES	\$7,401,075	\$6,927,603
Maintenance of way	1,254,495	1,143,112
Maintenance of equipment	1,392,448	1,447,214
Transportation	1,882,297	1,866,829
TOTAL OPERATING EXPENSES	4,956,597	4,829,408
Operating ratio	66.97	69.71
NET REVENUE FROM OPERATIONS	2,444,476	2,098,195
Railway tax accruals	596,539	551,405
Railway operating income	1,847,937	1,546,790
Hire of freight cars, net	227,711	332,716
Cr.	1,471	1,695
Joint facility rents, Dr.		
NET RAILWAY OPERATING INCOME	2,086,303	1,890,047
Non-operating income	300,744	413,062
GROSS INCOME	2,148,395	1,958,564
Interest on funded debt	995,600	1,023,942
TOTAL DEDUCTIONS FROM GROSS INCOME	1,008,672	1,044,238
NET INCOME	1,139,723	914,326

BOSTON, REVERE BEACH & LYNN.—*Dividends Decrease.*—Directors of this company have reduced the annual dividend rate on the company stock from \$5 to \$4 per share, by declaring a quarterly dividend of \$1, payable April 2 to stockholders of record March 30. This company paid 6 per cent dividends an-



Photo H. F. O'Neil

Union Terminal, Dallas, Tex.

nually from 1908 to 1927 except from 1920 to 1922. In January, 1928 a quarterly dividend of \$1.25 a share was paid reducing the annual rate to 5 per cent. The railroad operates a narrow-gage line from East Boston, Mass., to Lynn and Winthrop, 13 miles. It was recently acquired by new interests and is now in the process of being electrified, the expenses in connection with which are given as the cause of the decrease in dividend rate.

CAMBRIA & INDIANA.—Bonds Authorized.—The Interstate Commerce Commission has authorized this company to issue \$1,800,000 first mortgage 4½ per cent gold bonds to be sold at 97 to Drexel & Co., Philadelphia, at which price the average annual cost to the carrier will be approximately 4.666 per cent. The proceeds, in part, are to be applied to the redemption of \$326,000 first mortgage 5 per cent bonds maturing May 1, 1936 and for the redemption of \$1,000,000 6 per cent bonds, series A, maturing August 1, 1944, which bonds are redeemable at 2½ per cent. The remainder of the proceeds will be appropriated toward payment of the cost of construction of a 5-mile extension from Revloc, Cambria County, Pa.

CHICAGO, ST. PAUL, MINNEAPOLIS & OMAHA.—Equipment Trust.—This company has applied to the Interstate Commerce Commission for authority to assume obligation and liability in respect of an issue of \$480,000 of 4¾ per cent equipment trust certificates, to be sold at the best price obtainable.

CINCINNATI SOUTHERN.—Injunction Against Lease Refused.—The Court of Appeals at Cincinnati, Ohio, handed down an opinion on March 12 in which it refused to enjoin the trustees of this company from entering into a 99-year lease to the Cincinnati, New Orleans & Texas Pacific. The court stated that the matter of violation of the Interstate Commerce laws by this lease, which is an extension of one which has been in force for some years, is now before the Interstate Commerce Commission and the court of appeals is not called to pass upon this.

CLEVELAND & PITTSBURGH.—Bonds.—This company has applied to the Interstate Commerce Commission for authority to issue and deliver to the Pennsylvania \$4,897,000 of general and refunding mortgage 4½ per cent gold bonds, in partial reimbursement of indebtedness. The Pennsylvania also applied for authority to assume obligation and liability as lessee in respect of the bonds.

DENVER & RIO GRANDE WESTERN.—Bond Application.—This company has applied to the Interstate Commerce Commission for authority for the authentication and delivery of \$17,000,000 of refunding and improvement mortgage 5 per cent gold bonds, to sell \$12,000,000 of them to Kuhn, Loeb & Co., at 93½ and interest, and to pledge \$5,000,000 of them from time to time. Of the proceeds, \$8,335,000 will be used for the payment of bonds of the Denver & Rio Grande, maturing June 1, and the balance in car-

rying out an improvement program. The public offering of these bonds was reported in the *Railway Age* of March 10.

DELAWARE & HUDSON.—Annual Report.—The annual report for 1927 shows net income after interest and other charges but before sinking fund appropriations, of \$3,071,861, equivalent to \$5.95 per share on the outstanding capital stock. Net income in 1926 was \$8,303,277, or \$19.27 per share. Selected items from income statement follow:

DELAWARE & HUDSON		
	1927	1926
RAILWAY OPERATING REVENUES	\$42,753,526	\$46,433,690
Maintenance of way	5,713,638	5,373,037
Maintenance of equip'm't	11,284,973	11,506,764
Transportation	15,024,743	15,411,348
TOTAL OPERATING EXPENSES	34,656,101	34,941,819
Operating ratio	81.06	75.25
Railway tax accruals	1,471,158	1,688,168
Gross railway operating income	8,632,323	11,911,717
Equipment rents, Cr.	39,678	36,050
Joint facility rents, Dr.	322,040	214,692
NET RAILWAY OPERATING INCOME	6,589,782	9,774,816
Non-operating income	2,711,906	5,860,125
GROSS INCOME	9,301,687	15,634,941
Rent for leased roads	1,915,545	1,962,169
Interest on funded debt	3,266,625	3,641,312
TOTAL DEDUCTIONS FROM GROSS INCOME	6,229,826	7,331,663
NET INCOME	3,071,861	8,303,277

FONDA, JOHNSTOWN & GLOVERSVILLE.—Annual Report.—The annual report for 1927 shows net income after interest and other charges of \$1,361 as compared with net income in 1926 of \$31,411. Selected items from the income statement follow:

FONDA, JOHNSTOWN & GLOVERSVILLE		
	1927	1926
RAILWAY OPERATING REVENUES	\$1,150,928	\$1,217,034
TOTAL OPERATING EXPENSES	782,804	815,859
NET REVENUE FROM OPERATIONS	368,124	401,175
Railway tax accruals	77,012	73,627
Railway operating income	291,112	327,548
Non-operating income	87,006	72,121
GROSS INCOME	387,264	416,323
NET INCOME	1,361	31,411

KANSAS CITY SOUTHERN.—Answer to I. C. C. Complaint.—This company has filed with the Interstate Commerce Commission an answer to the commission's complaint charging it with violation of the Clayton law in acquiring a large part of the stock of the Missouri-Kansas-Texas and the St. Louis Southwestern without the approval of the commission. Asserting that the acquisition of stock was made in good faith for the purpose of creating a new system in the Southwest, the company denies that the effect has been, may be or will be to substantially lessen competition between the three companies or to restrain commerce. The answer takes the position that the acquisition was in the nature of an investment within the purview of and made lawful by the third paragraph of section 7 of the Clayton law, and that the commission was informed of the purchase and of the plan on February 20, 1925.

After reference to the new application filed by the M.-K.-T. for authority to acquire control of the K. C. S. and Cotton Belt the company asks that this be taken as part of its answer and says that if it is approved title to the 155,000 shares of Cotton Belt stocks will automatically pass to the M.-K.-T. It has made all reasonable efforts to dispose of its M.-K.-T. common stock, the K. C. S. says, and has sold in the market 119,500 shares thereof, but a greater amount could not have been sold without seriously disturbing market conditions, and it intends to liquidate the remainder as soon as market conditions permit.

KANSAS CITY SOUTHERN.—Annual Report.—The preliminary annual report for 1927 shows net income after interest and other charges of \$1,897,667, equivalent after the 4 per cent dividend on the preferred stock, to \$3.53 per share on the outstanding common stock. Net income in 1926 was \$2,279,832, or \$4.80 per share. Selected items from the income statement follow:

KANSAS CITY SOUTHERN		
	1927	1926
Average mileage operated	865.10	865.10
RAILWAY OPERATING REVENUES	\$22,048,606	\$21,921,947
Maintenance of way	2,603,629	2,506,165
Maintenance of equip'm't	3,496,471	3,523,780
Transportation	6,785,783	6,766,974
TOTAL OPERATING EXPENSES	14,764,491	14,548,658
Operating ratio	73.30	72.92
NET REVENUE FROM OPERATIONS	7,284,115	7,373,288
Railway tax accruals	1,396,770	1,437,017
Railway operating income	5,879,872	5,929,587
Equipment rents, net Dr.	1,019,110	835,522
Joint facility rents, net Dr.	92,743	90,222
NET RAILWAY OPERATING INCOME	4,768,019	5,003,843
Non-operating income	610,568	956,604
GROSS INCOME	6,490,441	6,886,192
Rent for leased roads	171,814	173,263
Interest on funded debt	2,599,987	2,490,576
TOTAL DEDUCTIONS FROM GROSS INCOME	4,592,774	4,606,360
NET INCOME	1,897,667	2,279,832
Dividends on preferred stock	840,000	840,000
Surplus for year carried to profit and loss	1,057,667	1,439,832

MISSOURI PACIFIC.—Acquisition.—The Interstate Commerce Commission has issued a certificate authorizing the Chester & Mount Vernon, a new company created for the purpose, to acquire the railroad properties formerly owned by the Wabash, Chester & Western which was formerly controlled by the Southern Gem Coal Corporation but which was sold at foreclosure on September 7, 1927. The new company has been authorized to issue not to exceed \$250,000 first mortgage 6 per cent bonds, \$150,000 preferred stock and \$100,000 common stock to be turned over to L. G. Binkley, a coal operator of Chicago who was the purchaser of the property at the sale. The Missouri Pacific has agreed to purchase the bonds and preferred stock at par from Mr. Binkley. In addition, the Missouri Pacific has been authorized by the commission to acquire control of the new Chester & Mount Vernon by lease for a term of 5 years.

(Continued on page 841)

Annual Reports

Norfolk and Western Railway Company. Thirty-Second Annual Report

ROANOKE, VA., March 27th, 1928.

To the Stockholders of the Norfolk and Western Railway Company:

Your Board of Directors submits the following report for the year ending December 31st, 1927.

Mileage of Road and Track in Operation.

	December 31st, 1927 Miles	December 31st, 1926 Miles	Increase or Decrease Miles
Main Line	1,542.67	1,542.69	Dec. .02
Branches { Operated as sec- ond track..... 127.28 Other branches. 533.75		127.28 533.64	
	661.03	660.92	Inc. .11
Total miles	2,203.70	2,203.61	Inc. .09
Lines operated under lease	22.27	22.27	
Lines operated under trackage rights	15.60	15.60	
Total miles of road in operation	2,241.57	2,241.48	Inc. .09
Second track	620.75	620.76	Dec. .01
Third track	13.58	13.58	
Sidings and yard tracks..	1,601.32	1,567.51	Inc. 33.81
Total miles of all tracks in operation	4,477.22	4,443.33	Inc. 33.89
Average miles of road operated	2,241.75	2,241.48	Inc. .27
Average miles of track operated	4,448.82	4,434.90	Inc. 13.92
The increase in miles of road in operation was as follows:			
Beaver Dam Branch, portion not operated, retired in 1925 deducted from operated mileage, reinstated in operated mileage in this report .....			.23
Radford Branch Extension .....			.07
North Carolina Extension—Main Line Extension.....			.02 .32
Less:			
Atlantic Coast Line connection, Seacoast, Va., retired...			.19
Durham District—Main Line retired .....			.04 .23
Net increase .....			.09

Capital Stock

The aggregate amounts of Adjustment Preferred and Common capital stock authorized by the stockholders and issued, including 77 shares (\$7,700) of Adjustment Preferred stock and 24 shares (\$2,400) of Common stock held in the Company's treasury, were as follows:

	Authorized by Stockholders	Issued	
		Par Value	Shares
Adjustment Preferred Stock	\$23,000,000	\$23,000,000	230,000
Common stock	250,000,000	140,008,700	1,400,087
Totals, December 31st, 1927...	\$273,000,000	\$163,008,700	1,630,087
Totals, December 31st, 1926...	273,000,000	162,572,700	1,625,727
Increase (all Common Stock)		\$436,000	4,360

Funded Debt

The aggregate Funded Debt actually outstanding was as follows:

	Dec. 31st, 1927	Dec. 31st, 1926	Decrease
Mortgage Bonds	\$95,288,500	\$95,288,500	
Convertible Bonds (\$441,000 not now convertible)	1,158,300	1,594,300	\$436,000
Equipment Trust Obligations	20,010,000	23,185,000	3,175,000
Totals	\$116,456,800	\$120,067,800	\$3,611,000

Road and Equipment

The charges to Investment in Road and Equipment during the year were \$20,449,315.05.

The total investment in road, equipment and miscellaneous physical property on December 31st, 1927, was \$425,614,646.55, of which \$44,354,857.50 was provided by appropriations from income and surplus. In addition \$10,892,220.69 was provided by direct charges to income prior to July 1st, 1907.

New equipment received and equipment rebuilt during the year were as follows:

- 10 freight locomotives (steam).
- 6 passenger and baggage cars, all steel.
- 4 baggage and mail cars, all steel.

- 3 dining cars, all steel.
- 17 mail storage cars, all steel.
- 250 box cars, 100,000 lbs. capacity, all steel (built at Roanoke Shops).
- 250 gondola cars, 180,000 lbs. capacity, all steel (built at Roanoke Shops).
- 2,000 hopper cars, 140,000 lbs. capacity, all steel.
- 25 cabin cars, all steel (built at Roanoke Shops).
- 50 side dump cars.
- 2 steam derrick cars.
- 1 pile driver car.
- 2 supply cars (built at Roanoke Shops with used material).
- 18 maintenance of way camp cars (built at Roanoke Shops with used material).
- 10 maintenance of way flat cars (built at Roanoke Shops with used material).
- 6 locomotive cranes.
- 1 tank car (built at Roanoke Shops with used material).
- 9 ditching machines.
- 6 refrigerator cars.
- 1 automobile (used Ford sedan).
- 2 motorcycles with side cars.
- 1 automobile truck.

Additions and Betterments to Way and Structures

287.40 miles of track were laid with 130-lb. rail, making a total of 1,033.58 miles of track now laid with this weight of rail.

392,729 cubic yards of stone and 66,727 cubic yards of prepared slag were used in standard ballasting on the main line.

A third track between 5th Avenue and Big Four Interchange, Joyce Avenue Yard, Columbus, Ohio, was constructed.

Passing sidings aggregating 11.35 miles in length were constructed and extensions aggregating 11.11 miles were made to existing passing sidings.

Station buildings were constructed at Narrows, Va., and at Bradshaw, W. Va. The freight station at Lucasville, Ohio, was extended. At Lambert Point, Va., a warehouse for perishable freight was constructed and Pier "S" was extended.

The new freight classification yard at Williamson, W. Va., is nearing completion and will be put in operation about March, 1928. During the year additional office, shop and storage buildings were completed.

At Portsmouth, Ohio, the enlarged classification yards and terminals have been completed and placed in operation. During the year car repair yard and new coach yard facilities, including office, shop and storage buildings, were completed. A large receiving station for refrigerating cars was also completed. Flood lights were installed, and car retarders and switches controlling thirty classification tracks were put in service.

A new yard with fourteen yard tracks and sundry running, car repair and wye tracks, etc., is in process of construction at Winston-Salem, N. C.

A track scale of 200 tons capacity was installed at Columbus, Ohio, for motion weighing, releasing one of 150 tons capacity removed to Chillicothe, Ohio, and one of 300 tons capacity, for motion weighing, was re-located at Portsmouth, Ohio.

Steel water storage tanks were erected as follows: One each of 200,000 gallons capacity at Pulaski and Bristol, Va., one each of 100,000 gallons capacity at Sampson, Stuarts Draft, Vesuvius and Payne, Va., at Morgan and Rift, W. Va., and at Delano and Williamsburg, Ohio. Service tanks of 50,000 gallons capacity each were erected at Clarkton, Va., at West Jefferson, N. C., and at Portsmouth, Ohio. The capacity of steel water storage tank at Eckman Yard was increased from 100,000 gallons to 200,000 gallons.

A concrete pump well, two electric centrifugal pumps with capacity of 750 gallons per minute each and 1½ miles of 10-inch cast iron water supply line were installed on Scioto River to provide an adequate water supply near Dorney, Ohio. An electric centrifugal pump of 3,500 gallons capacity per minute was installed at Peters Creek, Roanoke, Va. Electric centrifugal pumps were installed at Stuarts Draft, Henry, Payne, Ridgeway, Elliston, Richlands, Boody and Coeburn, Va., and at Williamson and Hatfield, W. Va. 4 miles of 8-inch cast iron water pipe line, between Morgan and North Fork, were re-

placed by 2 miles of 12-inch cast iron pipe and 2 miles of 10-inch cast iron pipe, to increase capacity of Elkhorn water supply. 1,100 feet of 6-inch cast iron water pipe in Eckman Yard were replaced by 8-inch cast iron pipe.

Automatic signals were installed between Roanoke, Va., and Winston-Salem, N. C., Bluefield, W. Va., and Norton, Va., Tug Junction and Auville Yard and Dry Fork Junction and Auville Yard, W. Va.

Steel overhead highway bridges were constructed at Vinton and Rocky Mount, Va., a concrete overhead highway bridge at Shenandoah, Va., and a timber overhead highway bridge at Denniston, Va. Concrete undergrades were constructed at Rustburg and Pisgah, Va., at Durham, north and south of Stoneville and Winston-Salem, N. C. A reinforced concrete viaduct was constructed at Walnut Avenue, Roanoke, Va.

Twenty-two grade crossings were eliminated during the year.

Income Statement				
	1927	1926	Increase or Decrease	Per Cent.
OPERATING INCOME:				
Operating Revenues:				
Freight	\$99,992,235.10	\$108,703,462.59	Dec. \$8,711,227.49	8.01
Passenger	6,893,707.60	7,663,493.63	Dec. 769,786.03	10.04
Mail	1,113,538.31	1,120,521.12	Dec. 6,982.81	.62
Express	1,106,574.69	1,067,486.65	Inc. 39,088.04	3.66
All Other Transportation	539,573.66	539,244.86	Inc. 328.80	.06
Incidental and Joint Facility Revenue	1,302,571.28	1,314,829.52	Dec. 12,258.24	.93
Totals	\$110,948,200.64	\$120,409,038.37	Dec. \$9,460,837.73	7.86
Operating Expenses:				
Maintenance of Way and Structures	\$15,711,540.40	\$16,413,152.12	Dec. \$701,611.72	4.27
Maintenance of Equipment	21,261,404.42	21,215,215.26	Inc. 46,189.16	.22
Traffic	1,340,033.90	1,309,177.16	Inc. 30,856.74	2.36
Transportation	28,988,768.59	30,283,219.54	Dec. 1,294,450.95	4.27
Miscellaneous Operations	275,429.66	270,640.43	Inc. 4,789.23	1.77
General	2,558,173.40	2,269,535.47	Inc. 288,637.93	12.72
Transportation for Investment—Credit	439,224.74	534,025.80	Dec. 94,801.06	17.75
Totals	\$69,696,125.63	\$71,226,914.18	Dec. \$1,530,788.55	2.15
Ratio of Expenses to Total Operating Revenues	62.82%	59.15%	Inc. 3.67%	6.20
Net Revenue from Operations	\$41,252,075.01	\$49,182,124.19	Dec. \$7,930,049.18	16.12
Tax Accruals	\$10,300,000.00	\$11,075,000.00	Dec. \$775,000.00	7.00
Uncollectible Revenue	13,740.03	12,331.66	Inc. 1,408.37	11.42
Total Operating Income	\$30,938,334.98	\$38,094,792.53	Dec. \$7,156,457.55	18.79
NON-OPERATING INCOME:				
Hire of Freight Cars—Net	\$2,690,571.29	\$2,418,469.07	Inc. \$272,102.22	11.25
Hire of Other Equipment—Net	182,098.85	128,812.12	Inc. 53,286.73	41.37
Joint Facility Rents—Net	199,945.41	280,076.96	Dec. 80,131.55	28.61
Totals	\$3,072,615.55	\$2,827,358.15	Inc. \$245,257.40	8.67
NET RAILWAY OPERATING INCOME:	\$34,010,950.53	\$40,922,150.68	Dec. \$6,911,200.15	16.89
OTHER NON-OPERATING INCOME:				
Income from Lease of Road	\$1,110.00	\$1,110.00		
Miscellaneous Rent Income	90,300.31	83,433.04	Inc. \$6,867.27	8.23
Miscellaneous Non-Operating Physical Property	113,009.74	99,158.70	Inc. 13,851.04	13.97
Dividend Income	7,098.66	7,098.66		
Income from Funded Securities	1,431,003.03	812,166.14	Inc. 618,836.89	76.20
Income from Unfunded Securities and Accounts	438,019.88	429,432.01	Inc. 8,587.87	2.00
Income from Sinking and Other Reserve Funds	98,320.27	63,318.13	Inc. 35,002.14	55.28
Miscellaneous Income	5,656.27	12,780.85	Dec. 7,124.58	55.74
Totals	\$2,184,518.16	\$1,508,497.53	Inc. \$676,020.63	44.81
GROSS INCOME	\$36,195,468.69	\$42,430,648.21	Dec. \$6,235,179.52	14.69
DEDUCTIONS FROM GROSS INCOME:				
Rent for Leased Roads	\$100,481.95	\$97,625.26	Inc. \$2,856.69	2.93
Miscellaneous Rents	2,069.70	2,280.40	Dec. 210.70	9.24
Miscellaneous Tax Accruals	1,935.15		Inc. 1,935.15	
Interest on Funded Debt:				
Mortgage Bonds	4,096,084.44	4,004,240.00	Inc. 91,844.44	2.29
Convertible Bonds	67,299.08	113,566.37	Dec. 46,267.29	40.74
Equipment Obligations	964,237.50	1,106,973.14	Dec. 142,735.64	12.89
Interest on Unfunded Debt	19,209.42	13,274.89	Inc. 5,934.53	44.70
Income applied to Sinking and Other Reserve Funds	98,320.27	63,318.13	Inc. 35,002.14	55.28
Miscellaneous Income Charges	194,535.69	225,181.81	Dec. 30,646.12	13.61
Totals	\$5,544,173.20	\$5,626,460.00	Dec. \$82,286.80	1.46
NET INCOME	\$30,651,295.49	\$36,804,188.21	Dec. \$6,152,892.72	16.72
Dividends on Adjustment Preferred Stock	919,692.00	919,692.00		
INCOME BALANCE: Transferred to Profit and Loss	\$29,731,603.49	\$35,884,496.21	Dec. \$6,152,892.72	17.15

Profit and Loss Statement				
	1927	1926	Increase or Decrease	Per Cent.
CREDITS:				
Balance, January 1st	\$82,830,080.46	\$60,727,284.59	Inc. \$22,102,795.87	36.40
Credit Balance from Income	29,731,603.49	35,884,496.21	Dec. 6,152,892.72	17.15
Unrefundable Overcharges	702.46	54,043.46	Dec. 53,341.00	98.70
Repayment by Pocahontas Coal and Coke Company, account Advances for Mortgage Bond Interest	216,000.00	280,000.00	Dec. 64,000.00	22.86
Profit on Road and Equipment Sold	13,687.50	21,314.36	Dec. 7,626.86	35.78
Donations for Construction of Sidings	72,905.80	318,616.42	Dec. 245,710.62	77.12
Delayed Income Credits	3,145,522.75		Inc. 3,145,522.75	
Repayment by Trustees of Norfolk and Western Pension Reserve Fund covering payments to retired employees for the years 1927 and 1926....	358,463.22	312,103.82	Inc. 46,359.40	14.85
Miscellaneous Credits	54,463.44	38,680.46	Inc. 15,782.98	40.80
Total Credits	\$116,423,429.12	\$97,636,539.32	Inc. \$18,786,889.80	19.24
CHARGES:				
Dividend Appropriations of Surplus, Common Stock	\$13,990,767.50	\$13,920,717.50	Inc. \$70,050.00	.50
Surplus Appropriated for Investment in Physical Property	72,905.80	318,616.42	Dec. 245,710.62	77.12
Loss on Retired Road and Equipment	83,677.92	37,516.49	Inc. 46,161.43	123.04
Surplus applied to Norfolk and Western Pension Reserve Fund	566,000.00	490,000.00	Inc. 76,000.00	15.51
Miscellaneous Charges	57,462.71	39,608.45	Inc. 17,854.26	45.08
Total Charges	\$14,770,813.93	\$14,806,458.86	Dec. \$35,644.93	.24
Balance, December 31st	\$101,652,615.19	\$82,830,080.46	Inc. \$18,822,534.73	22.72

[ADVERTISEMENT]

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five by construction of overhead highway bridges, six by construction of undergrades and eleven by changes in road.
3.32 miles of fencing were built.
2,906 lineal feet of light steel bridges were replaced by standard steel structures.
1,222 lineal feet of light steel bridges were replaced with fit steel doubled.
410 lineal feet of timber trestle were filled, 472 feet were replaced with fit steel, 90 feet with concrete slabs, 100 feet with reinforced concrete culvert and 138 feet with creosoted timber ballast deck.

Maintenance Expenditures

The expenses for Maintenance of Way and Structures were as follows:

Total Expenses	1927	1926	Decrease	Per Cent.
Average per mile of road operated	\$15,711,540.40	\$16,413,152.12	\$701,611.72	4.27
Average per mile of track operated	7,008.61	7,322.46	313.85	4.29
	3,531.62	3,700.91	169.29	4.57

The expenses for Maintenance of Equipment were as follows:

	1927	1926	Increase or Decrease	Per Cent.
Total Maintenance of Equipment Expenses	\$21,261,404.42	\$21,215,215.26	Inc. \$46,189.16	.2
In which are included:				
Steam Locomotives: Repairs, retirements and depreciation	9,913,600.14	10,650,060.92	Dec. 736,460.78	6.9
Average per locomotive	10,840.46	10,995.54	Dec. 155.08	1.4
Average per 1,000 locomotive miles	444.86	449.48	Dec. 4.62	1.0
Electric Locomotives (Double-units): Repairs, retirements and depreciation ..	346,887.32	309,023.88	Inc. 37,863.44	12.3
Average per locomotive	21,680.46	19,313.99	Inc. 2,366.47	12.3
Average per 1,000 locomotive miles	702.11	499.10	Inc. 203.01	40.7
Freight Train Cars: Repairs, retirements and depreciation	7,546,765.14	6,853,826.79	Inc. 692,938.35	10.1
Average per freight car	159.58	149.86	Inc. 9.72	6.5
Average per 1,000 tons one mile .....	.50	.41	Inc. .09	22.0
Passenger Train Cars: Repairs, retirements and depreciation	924,669.88	923,682.01	Inc. 987.87	.1
Average per passenger car	1,817.25	1,876.14	Dec. 58.89	3.1
Average per 1,000 passengers one mile	4.58	4.16	Inc. .42	10.1
Work Equipment: Repairs, retirements and depreciation	311,698.01	387,453.84	Dec. 75,755.83	19.6

ASSETS

Norfolk and Western Railway Company

		Comparison with	
INVESTMENTS:		Dec. 31st, 1926	
Investment in Road and Equipment:		Inc. \$12,706,922.82	
Road	\$296,660,827.61		
Equipment owned	\$85,336,543.45		
Equipment in Trust	39,520,165.72	Inc. 7,742,392.23	
Deposits in lieu of mortgaged property sold		\$421,517,536.78	
Miscellaneous Physical Property		22,689.78	Inc. 12,954.52
Investments in Affiliated Companies:		4,097,109.77	Inc. 16,498.30
Stocks	\$2,077,341.42		
Bonds	264,407.50		Dec. 183,132.50
Advances	5,808,436.70		Inc. 1,088,909.19
Other Investments:		8,150,185.62	
Stocks	\$25,000.00		Dec. 4,696.40
Bonds	22,873,465.14		Dec. 4,056,479.79
Total Investments		22,898,465.14	
		\$456,685,987.09	
CURRENT ASSETS:			
Cash:			
In Treasury	\$4,256,719.58		
In Transit	210,297.57		
Held in Trust for Relief Fund	68,909.25		
Loans and Bill Receivable	\$4,535,926.40		Dec. 1,149,988.88
Traffic and Car-Service Balances Receivable	101,719.06		Dec. 73,249.75
Net Balance Receivable from Agents and Conductors	1,498,066.06		Dec. 78,334.11
Miscellaneous Accounts Receivable	303,196.77		Dec. 14,068.24
Material and Supplies	1,368,233.05		Dec. 269,022.42
Interest and Dividends Receivable	13,862,625.90		Inc. 155,418.70
Other Current Assets	123,008.29		Dec. 26,070.35
	44,307.44		Dec. 30,390.24
Total Current Assets		21,837,082.97	
DEFERRED ASSETS:			
Working Fund Advances	\$15,153.72		Inc. 5,361.00
Trustees for Norfolk and Western Pension Reserve Fund	2,250,158.85		Inc. 308,857.05
Norfolk and Western Railway Company and Pocahontas Coal and Coke Company Joint Purchase Money Mortgage Bonds	13,267,000.00		Dec. 463,000.00
Cost of Securities held in trust for Relief Fund	1,565,908.45		Inc. 284,643.93
Other Accounts	85,800.00		Dec. 5,750.00
Total Deferred Assets		17,184,021.02	
UNADJUSTED DEBITS:			
Rents and Insurance Premiums paid in advance	\$27,327.30		Dec. 67,143.51
Discount on Funded Debt	1,702,753.14		Dec. 205,519.60
Other Unadjusted Debits	4,007,465.60		Dec. 1,018,500.75
Securities Issued or Assumed—Unpledged			
Par Value of holdings at close of year	\$163,100.00		
Total Unadjusted Debits		5,737,546.04	
		\$501,444,637.12	Inc. \$14,676,641.20

Per
Cent.
8.01
10.04
.62
3.66
.06
.93
7.86
4.27
.22
2.36
4.27
1.77
12.72
17.75
2.15
6.20
16.12
7.00
11.42
18.79
11.25
41.37
28.61
8.67
16.89
8.23
13.97
76.20
2.00
55.28
55.74
44.81
14.69
2.93
9.24
2.29
40.74
12.89
44.70
55.28
13.61
1.46
16.72
17.15
Per
Cent.
6.40
7.15
8.70
2.86
5.78
7.12
8.85
8.80
7.24
5.50
1.12
0.04
5.1
0.08
2.4
7.2

Traffic and Operating Revenue Comparisons

Comparison of traffic and operating revenue figures with those of the preceding year shows the following changes:

Number of passengers	3,603,429
Average haul of passengers	56.08 miles
Revenue from passenger fares	\$6,893,707.60
Average rate per passenger per mile	3.412 cents
Revenue freight carried	54,846,560 tons
Average haul of freight	273.93 miles
Revenue from freight transportation	\$99,992,235.10
Average rate per ton per mile .....	.666 cents
Average tons of revenue freight per train mile	1,464.61
Shipments of coal	42,641,359 tons
Shipments of coke	278,995 tons
Shipments of ore	533,816 tons
Shipments of pig and bloom iron	144,399 tons
Shipments of lumber	1,521,575 tons

Relief and Pension Department

At the close of the year the Relief Fund had 21,979 members, equivalent to 77.19 per cent. of the total number of employees, a

decreased	565,831	13.57 per cent.
increased	2.88 miles	5.41 "
decreased	\$769,786.03	10.04 "
decreased	.043 cents	1.24 "
decreased	3,341,517 tons	5.74 "
decreased	13.40 miles	4.66 "
decreased	\$8,711,227.49	8.01 "
increased	.016 cents	2.46 "
decreased	18.81 tons	1.27 "
decreased	2,965,888 tons	6.50 "
decreased	192,962 tons	40.89 "
decreased	267,971 tons	33.42 "
decreased	73,847 tons	33.84 "
decreased	72,275 tons	4.53 "

Passenger traffic and revenue continue to show declining figures, the result of the steady growth in the use of automobiles, both private and public. In the last eleven years every year but one shows a decrease in number of passengers carried compared with the preceding year, and while to some extent this has been offset by increased rates and an increase in the average haul, nevertheless for the last five years revenue also has steadily declined.

The percentage of Net Revenue from Operations consumed by taxes for the year ending December 31, 1927, was 24.97 per cent., comparing with 22.62 per cent. in 1918.

decrease in the year of 881 members and an increase of 7.05 per cent. in ratio of members to employees. The members of the Fund contributed during the year \$792,774.37 and the Fund received additional income of \$62,426.46 from interest. Against these total receipts of \$855,200.83 death benefits aggregating \$174,818.38 and sickness and accident disability benefits aggregating \$393,236.63 were paid, leaving a balance of \$287,145.82 which was added to the Fund's credit balance now standing at \$1,634,817.70 comparing with \$1,347,671.88 on December 31st, 1926. In the same period the Company paid the operating expenses of the Fund amounting to \$142,093.92.

Condensed General Balance Sheet, December 31st, 1927

		LIABILITIES		Comparison with Dec. 31st, 1926	
CAPITAL STOCK:					
Adjustment Preferred	\$23,000,000.00				
Held in Treasury	7,700.00				
		\$22,992,300.00			
Common	\$140,008,700.00				
Held in Treasury	2,400.00				
		140,006,300.00		Inc.	\$436,000.00
Total Capital Stock			\$162,998,600.00		
LONG TERM DEBT:					
Mortgage Bonds	\$95,301,500.00				
Held in Treasury	13,000.00				
		\$95,288,500.00			
Convertible Bonds		1,158,300.00		Dec.	436,000.00
Equipment Obligations	\$20,150,000.00				
Held in Treasury	140,000.00				
		20,010,000.00		Dec.	3,175,000.00
Total Long Term Debt			116,456,800.00		
CURRENT LIABILITIES:					
Traffic and Car-Service—Balances Payable	\$557,090.26			Dec.	92,624.20
Audited Accounts and Wages Payable	4,194,381.53			Dec.	1,225,857.11
Miscellaneous Accounts Payable	\$523,705.66				
Relief Fund (Cash held in trust)	68,909.25	592,614.91		Dec.	8,775.22
Interest Matured Unpaid		53,865.00		Dec.	1,151.00
Dividends Matured Unpaid		9,821.75		Dec.	296.75
Funded Debt Matured Unpaid		6,000.00			
Unmatured Dividends Declared		229,923.00			
Unmatured Interest Accrued		1,391,655.00		Dec.	42,245.25
Total Current Liabilities			7,235,351.45		
DEFERRED LIABILITIES:					
Cost of Securities Purchased for Relief Fund	\$1,565,908.45			Inc.	284,643.93
Other Accounts	84,840.98			Dec.	176,392.12
Total Deferred Liabilities			1,650,749.43		
JOINT LIABILITIES:					
Norfolk and Western Railway Company and Pocahontas Coal and Coke Company Joint Purchase Money Mortgage Bonds			13,267,000.00	Dec.	463,000.00
UNADJUSTED CREDITS:					
Tax Liability	\$7,070,922.00			Dec.	756,573.55
Insurance and Casualty Reserves	184,197.88			Dec.	1,233,514.88
Accrued Depreciation—Road	10,221,822.70			Dec.	2,260,830.40
Accrued Depreciation—Equipment	30,391,159.46			Inc.	2,787,440.55
Accrued Depreciation—Miscellaneous Physical Property	877,945.11			Inc.	138,621.28
Other Unadjusted Credits	2,832,457.55			Inc.	1,697,898.34
Total Unadjusted Credits			51,578,504.70		
CORPORATE SURPLUS:					
Norfolk and Western Pension Reserve	\$2,250,158.85			Inc.	308,857.05
(Held by independent Trustees.)					
Additions to Property through Income and Surplus:					
Road	\$21,049,831.23				
Equipment	23,305,026.27				
		44,354,857.50		Inc.	72,905.80
Total Appropriated Surplus		\$46,605,016.35			
Profit and Loss—Balance		101,652,615.19		Inc.	18,822,534.73
Total Corporate Surplus			148,257,631.54		
			\$501,444,637.12	Inc.	\$14,676,641.20

[ADVERTISEMENT]

At the close of the year there were 660 employees on the Pension Roll, a net increase of 63 in the year with an average pension of \$583.08 per annum, compared with an average pension of \$550.20 per annum at the close of 1926.

Pension Reserve Fund

In December, 1927, your Directors appropriated from Surplus the sum of \$566,000, which was paid over to the Trustees of the Pension Reserve Fund, this amount being figured from actuarial tables as sufficient to take care of pensions to the 109 employees retired in the year 1927, so long as they may live. The total amount appropriated to date for this purpose is \$2,756,000. In 1927 the Fund received \$93,723.17 from interest and profit on sales of securities and paid \$358,463.22, in reimbursement for pension payments by the Company. At the close of the year the Trustees held securities of a face value of \$2,397,000, costing with accrued interest \$2,241,885.50, and \$721.62 in cash.

Pocahontas Coal and Coke Company

Earnings for the year 1927 from royalties on total output of coal mined and coke manufactured were \$1,513,614.78 and from other sources \$129,256.27, making total earnings of \$1,642,871.05 compared with \$1,841,264.28 in 1926. Operating expenses were \$173,541.42 and taxes \$172,108.07, leaving net earnings of \$1,297,221.56. Sinking fund and interest on funded debt, with other deductions, resulted in net income of \$378,551.49, a decrease of \$74,765.69 from that of the preceding year. The output of coal from the Company's leased property in 1927 was 14,523,989 tons and of coke 14,284 tons.

Under the sinking fund provision of the Pocahontas Coal Lands Purchase Money First Mortgage, dated December 2nd, 1901, \$363,671.09 accrued from royalties on coal mined during the calendar year 1927. From the beginning of the operation of the sinking fund in 1906 to December 31st, 1927, the accruals from royalties have aggregated \$6,135,046.96 and those from sales of lands \$221,986.95, a total of \$6,357,033.91 applicable to the purchase and retirement of mortgage bonds. Through this fund \$6,733,000 of bonds had been purchased and canceled to December 31st, 1927, and \$378,000 subsequent thereto. The

outstanding bonds on December 31st, 1927, were \$13,267,000 and at the date of this Report \$12,889,000 out of original issue of \$20,000,000.

A further payment of \$324,000 has been made on account of indebtedness incurred in previous years to meet fixed charges; this indebtedness has now been reduced to \$645,000.

Edward H. Harriman Memorial Gold Medal

On December 28th, 1927, your Company was honored by being awarded the Edward H. Harriman Memorial Gold Medal for the utmost progress in safety and accident prevention during the year 1926. This medal is annually awarded by the American Museum of Safety to the Class I railroad which during the preceding year has achieved the best result in the prevention of accidents. Your Company showed marked improvement in every phase of its accident prevention work, reducing by 28 per cent. the number of persons killed and by 15 per cent. the number injured during 1926 as compared with 1925, although in 1926 there was an increase of 8.57 per cent. in the number of miles run by locomotives. The Award Committee was so impressed with the showing made that all members of the Committee commented upon it as one of the outstanding examples in recent years of the results of applying intelligent safety methods in a practical way to railway operation.

It is recognized that this honor could only have been won by the loyalty, efficiency and interest of the men and women who constitute the Norfolk and Western family, through whom the Company's safety record has been achieved.

Change in Organization

Lucian H. Cocke, Jr., formerly Assistant General Attorney, was appointed General Attorney, effective February 1st, 1928.

The Board expresses to the officers and employees its appreciation of the fidelity and efficiency with which they have served the Company throughout the year.

By order of the Board of Directors,
A. C. NEEDLES,
President.

The Chesapeake and Ohio Railway Company, Fiftieth Annual Report

RICHMOND, VA., March 31, 1928.

TO THE STOCKHOLDERS:

The Fiftieth Annual Report of the Board of Directors, for the fiscal year ended December 31, 1927, is herewith submitted. The average mileage operated during the year was 2,677.71 miles, an increase over the previous year of 31.40 miles. The mileage at the end of the year was 2,705.62 miles, an increase of 54.67 miles over mileage on December 31, 1926.

Results for the Year

Operating Revenues	\$133,042,174.28	
(Decrease \$931,856.34, or 0.70%)		
Operating Expenses	89,733,036.66	
(Decrease \$1,237,751.68, or 1.36%)		
Net Operating Revenue	\$ 43,309,137.62	
(Increase \$305,895.34, or 0.71%)		
Taxes and Uncollectible Railway Revenues	8,773,641.73	
(Increase \$518,018.62, or 6.27%)		
Railway Operating Income	\$ 34,535,495.89	
(Decrease \$212,123.28, or 0.61%)		
Net Equipment and Joint Facility Rents	1,785,334.39	
(Decrease \$478,070.97, or 21.12%)		
Net Railway Operating Income	\$ 36,320,830.28	
(Decrease \$690,194.25, or 1.86%)		
Miscellaneous Income	2,092,324.23	
(Decrease \$312,069.15, or 12.98%)		
Total Gross Income	\$ 38,413,154.51	
(Decrease \$1,002,263.40, or 2.54%)		
Rental and Other Payments	634,670.67	
(Increase \$83,626.42, or 15.18%)		
Income for year available for interest	\$ 37,778,483.84	
(Decrease \$1,085,889.82, or 2.79%)		
Interest (24.62% of amount available) amounted to	9,299,241.93	
(Decrease \$397,625.56, or 4.10%)		
Net Income for the year applicable to dividends and other corporate purposes	\$ 28,479,241.91	
(Decrease \$688,264.26, or 2.36%)		
Dividend of 6½% on Cumulative Convertible Preferred Stock, Series "A"	\$99,816.86	
Less—Adjustment account Preferred Stock converted into Common Stock during December, 1927, after December 8, 1927, the date as of which stockholders of record were entitled to dividends	38.83	99,778.03
Net Income equivalent to 24.09% of \$117,809,300 Common Stock outstanding December 31, 1927	\$ 28,379,463.88	
Common Stock Dividend—		
2½% on amount of stock held by stockholders of record March 8, 1927	\$ 2,343,324.00	

2½% on amount of stock held by stockholders of record June 8, 1927	2,937,075.00
2½% on amount of stock held by stockholders of record September 8, 1927	2,940,970.00
2½% on amount of stock held by stockholders of record December 12, 1927	2,944,225.00
	\$ 11,165,594.00

Less—Adjustment account of conversions of 6¼% Series "A" Preferred Stock converted into Common Stock during year	4,960.43	11,160,633.57
Remainder, available for payments of principal amounts of Equipment Trusts and improvement of physical and other assets	\$ 17,218,830.31	

Financial

On page 5 of the Forty-Ninth Annual Report for the year ended December 31, 1926, reference was made to resolution of the Board of Directors passed at meeting held June 25, 1926, respecting the redemption of five percent Convertible Secured Gold Bonds on or after October 1, 1926, at 105 and accrued interest to said redemption date. As of December 31, 1927, \$26,000 of these bonds were outstanding, the interest on which subsequent to October 1, 1926, had not accrued.

During the year, your Company's 6½ percent Cumulative Convertible Preferred Stock Series "A," which is convertible into Common Capital Stock on the basis of share for share, amounting to \$759,000 was converted into a like amount of Common Capital Stock. As of December 31, 1927, the amount of 6½ percent Cumulative Convertible Preferred Stock Series "A" outstanding was \$1,184,500.

The amount of Common Capital Stock and Scrip issued and outstanding as of December 31, 1927, was \$117,820,391.66, an increase during the year of \$759,000, which increase was caused by the conversion of 6½ per cent Cumulative Convertible Preferred Stock Series "A" as stated in the preceding paragraph of this report.

On page 5 of the Annual Report for the year ended December 31, 1926, reference was made to the incorporation of the Virginia Transportation Corporation, and the acquisition by your Company of the entire issue of Capital Stock of Said Corporation, which, as of December 31, 1927, owned shares of stocks of Erie Railroad Company as follows:

137,405 shares First Preferred acquired at an average price of \$47.209 per share.
 50,495 shares Second Preferred acquired at an average price of \$44.936 per share
 357,300 shares Common acquired at an average price of \$38.571 per share.

and also shares of stocks of Pere Marquette Railway Company as follows:

2,100 shares, Prior Preference acquired at an average price of \$93.194 per share.
 12,600 shares Preferred acquired at an average price of \$90.287 per share.
 2,300 shares Common acquired at an average price of \$117.565 per share.

On February 11, 1927, your Company made application to the Interstate Commerce Commission for authority to acquire all the shares of the capital stock of Erie Railroad Company and Pere Marquette Railway Company for which this Company then held options (as shown on page 5 of the Annual Report for the year ended December 31, 1926) and also additional shares thereof sufficient to constitute, together with the above mentioned shares owned by the Virginia Transportation Corporation, all or at least a numerical majority of the entire capital stocks of said Erie Railroad Company and of said Pere Marquette Railway Company. Hearings before the Interstate Commerce Commission with respect to said application began on May 10, 1927, and closed on June 22, 1927. Subsequently briefs were submitted and oral argument was heard before the full Commission on November 1, 1927. At the time of the printing of this report the Commission had not announced its decision.

The line of the Chesapeake and Hocking Railway Company between Gregg, Ohio, and Valley Crossing, Ohio, a distance of approximately 63 miles, was opened September 16, 1927, for operation by your Company under lease pursuant to order of the Interstate Commerce Commission in Finance Docket No. 5820 (117 I. C. C. 129). The cost of construction of this line as of December 31, 1927, was \$14,121,638.35 which amount has been, or will be, advanced by your Company, and for which the Chesapeake and Hocking Railway Company had on December 31, 1927, given to your Company promissory notes bearing interest at 6 percent per annum maturing within two years for \$12,500,000, and your Company had on that date advanced on open account, \$850,000, a total of \$13,350,000.

In accordance with authority granted by the Interstate Commerce Commission in Finance Docket No. 5762, 124, I. C. C. 195, your Company purchased all of the Common Capital Stock, except two shares each, of the Sewell Valley Railroad Company and the Loop and Lookout Railroad Company. Pursuant to this authority on July 1, 1927, these two companies were leased to your Company, since which time the earnings and expenses thereof have been included with those of your Company. The cost of the Capital Stock of the Sewell Valley Railroad Company and the Loop and Lookout Railroad Company, including certain acquisitions of property and equipment at a cost of \$250,000, was \$1,150,000. Your Company is, by endorsement on each bond, the guarantor of the principal of and interest on \$300,000 of First Mortgage Five Percent Bonds of the Sewell Valley Railroad Company.

In accordance with authority granted by the Interstate Commerce Commission in Finance Docket No. 5762, your Company purchased, as of January 1, 1928, all of the Common Capital Stock of the Greenbrier and Eastern Railroad Company, the cost of which was \$1,250,000. Since January 1, 1928, this property has been operated under lease by your Company, the earnings and expenses of which have been included in your Company's income account.

The changes in funded debt in the hands of the public during the year were as follows:

4 percent Greenbrier Railway First Mortgage Bonds	\$ 11,000.00
4 percent Big Sandy Railway First Mortgage Bonds	43,000.00
4 percent Coal River Railway First Mortgage Bonds	27,000.00
5 percent Kanawha Bridge and Terminal Company First Mortgage Bonds	5,000.00
Equipment Trust Obligations	3,971,800.00
Decrease	\$4,057,800.00

General Remarks

The revenue coal and coke tonnage was 59,043,590, an increase of 4.7 per cent; other freight tonnage was 11,979,673, an increase of 4.5 percent. Total revenue tonnage was 71,023,263 tons, an increase of 4.7 percent. Freight revenue was \$119,219,515.34, an increase of 0.1 percent. Freight train mileage was 14,308,604 miles, a decrease of 3.5 percent. Revenue ton miles

were 19,333,964,686, a decrease of 2.3 percent. Ton mile revenue was 6.17 mills, an increase of 2.5 percent. Revenue per freight train mile was \$8.332, an increase of 3.7 percent. Revenue tonnage per train mile was 1,351 tons, an increase of 1.2 percent; including Company's freight the tonnage per train mile was 1,411 tons, an increase of 1.6 percent. Tonnage per locomotive mile, including Company's freight, was 1,256 tons, a decrease of 0.1 percent. Revenue tonnage per loaded car was 41.0 tons, a decrease of 1.7 percent. Tons of revenue freight carried one mile per mile of road were 7,220,363, a decrease of 3.5 percent.

There were 5,127,188 passengers carried, a decrease of 4.5 percent. The number carried one mile was 248,436,654, a decrease of 6.1 percent. Passenger Revenue was \$8,554,924.32, a decrease of 5.8 percent. Revenue per passenger per mile was 3.444 cents, an increase of 0.3 percent. Number of passengers carried one mile per mile of road was 99,630, a decrease of 6.5 percent. Passenger train mileage was 5,527,865, a decrease of 1.2 percent. Passenger revenue per train mile was \$1.548, a decrease of 4.7 per cent; including mail and express it was \$1.934, a decrease of 2.8 per cent. Passenger Service Train Revenue per train mile was \$1.991, a decrease of 2.9 percent.

Operating Expenses decreased \$1,237,751.68, or 1.4 percent. Transportation Expenses decreased \$873,308.84, or 2.4 percent. Ratio of Transportation Expenses to Operating Revenues was 26.7 percent in 1927 and 27.2 percent in 1926. Revenue ton miles decreased 2.3 percent.

Equipment, Roadway, Track and Structures were maintained in good condition throughout the year.

On September 16, 1927, the line of the Chesapeake and Hocking Railway Company was opened for traffic. This line extends between Gregg, Ohio, and Valley Crossing, Ohio, a distance of approximately 63 miles. Prior to the opening of this line The Chesapeake and Ohio had been using the track of the Norfolk & Western Railway Company under a trackage agreement, made September 16, 1922, and which expired on September 15, 1927. This is one of the most important pieces of construction that has been completed by the Company for years and gives it its own tracks to a physical connection with the Hocking Valley Railway at Parsons Yard, Columbus. The line is a .2 percent grade with very light curvature, the use of which will produce many economies and will, in addition to expediting the movement of the business, provide, what is of more importance, adequate facilities to care for the expanding business of the Company.

During the year, the following sections of second track were completed and put in operation:

Logan Sub-Division.....between Ranger and Gill.....	8.20 miles
Northern Division.....through Apex Cut from near	
M. P. 18 to near M. P. 19.....	1.37 miles
at Gregg near Mile Post 28.....	.19 miles
between Gregg and Valley	
Crossing new double track line.....	57.38 miles

The Northern Division is now double tracked except from a point near Sciotoville, Ohio, to a point near Wheeler, Ohio, a distance of about $4\frac{1}{2}$ miles.

New branch lines were constructed up Pine Creek from Omar, W. Va., 4.48 miles in length to serve Mine No. 22 of the Island Creek Coal Company and the Kinniconnick and Free-stone Branch, was extended about 1.75 miles from its terminus near Carter, Ky.

Other improvements started during the year 1927, or late in 1926, which have not been completed, are:

Rupert, W. Va., construction of branch line up Big Clear Creek of Sewell Valley Railroad, a distance of approximately 12 miles.

New joint passenger station is being constructed at Doswell, Va., for use by the C. & O. Railway Company and the R. F. & P. Railroad Company, and at Jenkins, Ky., on Sandy Valley and Elkhorn Sub-Division new passenger station is being constructed.

Undergrade crossing is being constructed at Central Avenue, Barboursville, W. Va., separating the grades of the railroad and City Street.

During the year there was started one of the largest and most important projects ever undertaken on the C. & O. Railway. This work consists of rebuilding the bridges through Newport, Ky., separating the grades through Covington, Ky., rebuilding bridge over the Ohio River between Covington, Ky., and Cincinnati, O., the double-tracking of the Interterminal Railroad and the double-tracking of the Wood Street Incline of the Covington and Cincinnati Elevated Railroad and Transfer and Bridge Company. The estimated cost of this project is about \$12,000,000. Good progress is being made and it is expected that the work will be practically completed by the end of this year.

During the year, hearings with respect to the valuation of The Chesapeake and Ohio Railway Company, The Chesapeake and Ohio Railway Company of Indiana, and other subsidiaries

General Balance Sheet

(Excluding Stocks and Bonds owned of The C. & O. R'y Co. of Indiana and of The C. & O. Equipment Corporation.)

Assets			Liabilities	
Investments	Unpledged.	Pledged.	Capital Stock.	
Investments in Road and Equipment:			Common	\$117,820,391.66
Road		\$241,424,672.62	6½% Cumulative Convertible Preferred	
Equipment		130,532,579.02	Stock—Series "A"	1,184,500.00
		\$371,957,251.64	First Preferred (To be retired under plan	
Improvements on Leased			of February 23, 1892)	3,000.00
Railway Property		285,783.19	Second Preferred (To be retired under	
Sinking Fund		334,655.09	plan of February 23, 1892)	200.00
Deposits in Lieu of Mort-			Common—The Chesapeake and Ohio	
gaged Property Sold		272,293.75	Railway Company of Indiana	1,200.00
Miscellaneous Physical				119,009,291.66
Property		462,023.72	Less—held by or for the Company at	
Investments in Affiliated Companies.			date (Common)—(see Contra)	11,000.00
Stocks	\$35,527,193.80	\$11,213,999.44	Total Stock outstanding with public	\$118,998,291.66
Bonds	6,560,627.25	2,190,001.00		
Notes	1,000,000.00	1.00	Funded Debt.	
Advances	3,176,272.94		General Funding and Improvement 5%	
		\$ 59,668,095.43	Bonds	1929 3,698,000.00
Other Investments.			Convertible 4½% Bonds	1930 31,390,000.00
Stocks	15,535.93	15,535.93	First Mortgage R. & S. W. Railway	
Bonds	80,001.00	385,000.00	4% Bonds	1936 767,000.00
Notes	1.00	1.00	First Consolidated Mortgage, 5%	
Advances	56,345.81	56,345.81	Bonds	1939 30,000,000.00
Miscellaneous	1,700.00	1,700.00	First Mortgage, Craig Valley Branch,	
		\$ 538,583.74	5% Bonds	1940 650,000.00
Total Investments		\$433,518,686.56	First Mortgage, Greenbrier Railway,	
Current Assets.			4% Bonds	1940 1,588,000.00
Cash in Treasury		3,925,555.25	First Mortgage, Warm Springs Branch,	
Cash in Transit		630,324.90	5% Bonds	1941 400,000.00
Cash Deposit—Preferred			First Mortgage, Big Sandy Railway,	
Stock, Series "A" Pro-			4% Bonds	1944 3,982,000.00
ceeds		610,740.37	First Mortgage, Paint Creek Branch,	
Cash Deposit—Special			4% Bonds	1945 539,000.00
Fund for Additions			First Mortgage, Coal River Railway,	
and Betterments, New			4% Bonds	1945 2,414,000.00
Equipment, Branch			First Mortgage, C. & O. Northern Rail-	
Lines, etc.		5,080,691.63	way Company, 5% Bonds	1945 1,000,000.00
Cash Deposits to pay			First Mortgage, Potts Creek Branch,	
Interest and Dividends			4% Bonds	1946 600,000.00
Miscellaneous Cash De-			First Mortgage, Kanawha Bridge &	
posits		63,705.83	Terminal Company, 5% Bonds	1948 424,000.00
Loans and Bills Receiv-			First Mortgage, Virginia Air Line Rail-	
able		12,853,675.06	way, 5% Bonds	1952 900,000.00
Traffic and Car Service			First Mortgage, R. & A. Division,	
Balances Receivable ..		3,980,622.44	4% Bonds	1989 6,000,000.00
Net Balance Receivable			Second Mortgage, R. & A. Division,	
from Agents and Con-			4% Bonds	1989 1,000,000.00
ductors		648,700.63	General Mortgage 4½% Bonds	1992 48,129,000.00
Miscellaneous Accounts			Secured Obligations, Account final set-	
Receivable		1,920,662.31	tlement Federal Control Period, 1930	9,200,000.00
Material and Supplies ..		4,964,772.36	Secured Obligations to U. S. Govern-	
Interest and Dividends			ment	1931 6,738,523.97
Receivable		409,037.21	Secured Obligations to U. S. Govern-	
Rents Receivable		18,866.48	ment	1932 1,334,500.00
Other Current Assets		13,433.76	Equipment Trust Obligations	38,591,400.00
Total Current Assets ..		\$ 38,870,217.39	Total Funded Debt outstanding	
Deferred Assets.			with public	\$189,345,423.97
Working Fund Advances				\$308,343,715.63
Insurance and Other			Held by or for the Company at date:	
Funds		261,794.78	(See Contra)	
Other Current Assets		226,352.51	First Lien and Improvement 5% Mort-	
Total Deferred Assets ..		\$ 499,766.82	gage Bonds	1930 75,045,000.00
Unadjusted Debits.			General Mortgage 4½% Bonds	1992 1,039,000.00
Rents and Insurance			First Mortgage, R. & S. W. Railway,	
Premiums Paid in Ad-			4% Bonds	1936 40,000.00
vance		38,847.31		76,124,000.00
Other Unadjusted Debits			Current Liabilities.	
Securities Issued or As-		2,341,700.32	Traffic and Car Service Balances payable	470,494.49
sumed:			Audited Accounts and Wages Payable ..	8,587,590.62
Common Capital Stock			Miscellaneous Accounts Payable	420,477.45
(see Contra)	11,000.00		Interest Matured Unpaid	696,149.90
First Lien and Im-			Dividends Matured Unpaid	2,984,031.00
provement 5% Mtge.			Funded Debt Matured Unpaid	42,174.17
Bonds (see Contra)	50,488,000.00	24,557,000.00	Unmatured Interest Accrued	2,166,994.73
General Mortgage 4½%			Unmatured Rents Accrued	301,648.60
Bonds (see Contra).	552,000.00	487,000.00	Other Current Liabilities	30,725.07
First Mortgage, R. &				15,700,286.03
S. W. Railway 4%			Deferred Liabilities.	
Bonds (see Contra).	40,000.00		Other Deferred Liabilities	250,257.82
		40,000.00	Total Deferred Liabilities	250,257.82
Total Unadjusted Debits		\$ 78,504,547.63	Unadjusted Credits.	
Grand Total		\$551,393,218.40	Tax Liability	6,114,724.89
This Company is also liable as a guarantor of the following securities:			Insurance and Casualty Reserves	261,794.78
Western Pocahontas Fuel Co. Coupon 5% Notes. Due			Accrued Depreciation—Road	373,319.47
1919 and 1921 (\$500,000 each year), owned by this			Accrued Depreciation—Equipment	33,610,935.59
Company		\$ 1,000,000.00	Other Unadjusted Credits	4,110,702.23
The Chesapeake and Ohio Grain Elevator Co., First Mort-				44,471,476.96
gage 4% Bonds due 1938		820,000.00	Corporate Surplus.	
Richmond-Washington Co. Collateral Trust Mortgage (C.			Additions to Property through Income	
& O. prop'n 1/6) 4% Bonds due 1943		10,000,000.00	and Surplus	25,536,595.12
Louisville and Jeffersonville Bridge Co. Bills Payable (C.			Funded Debt Retired through Income	
& O. prop'n 1/3) 6% Notes due 1931		147,000.00	and Surplus	792,892.53
Louisville and Jeffersonville Bridge Co. Mortgage (C. &			Sinking Fund Reserves	334,655.09
O. prop'n 1/3) Bonds due 1945		4,500,000.00	Total Appropriated Surplus	26,664,142.74
Western Pocahontas Corporation, First Mortgage 4½%			Profit and Loss—Credit—Balance	79,839,339.22
Bonds due 1945		750,000.00	Total Corporate Surplus	106,503,481.96
Western Pocahontas Corporation, Extension Mortgage			Grand Total	\$551,393,218.40
No. 1, 4½% Bonds due 1945		97,000.00		
Western Pocahontas Corporation, Extension Mortgage				
No. 2, 4½% Bonds due 1946		51,000.00		
Norfolk Terminal and Transportation Company First				
Mortgage 5% Bonds due 1948		500,000.00		
Sewell Valley Railroad Company First Mortgage 5%				
Bonds due 1938		300,000.00		

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as of valuation date, June 30, 1916, were held, subsequent to which briefs both by the Interstate Commerce Commission and the Railway Company were submitted, and oral argument with respect thereto was heard on February 8, 1928.

Up to the time of the printing of this report, no decision with respect to the valuations as of June 30, 1916, has been announced by the Interstate Commerce Commission.

Among the new industries established along your line during the year were the following:

- 10 Manufacturers of Farm Implements and Farm Products.
- 27 Manufacturers of Lumber and Lumber Products.

165 Manufacturers of Mineral, Metal and other products including Oil Stations, Warehouses, etc.

Your Directors acknowledge the great appreciation of the Company for the faithful and efficient services of its officers and employees.

By order of the Board of Directors.

W. J. HARAHAAN,
President.

O. P. VAN SWERINGEN,
Chairman.

The Hocking Valley Railway Company, Twenty-Ninth Annual Report

Columbus, Ohio, February 29, 1928.

To the Stockholders:

The Twenty-ninth Annual Report of the Board of Directors, for the fiscal year ended December 31, 1927, is herewith submitted.

The average mileage operated during the year was 348.57 miles, the same as the average mileage operated during the previous year. The mileage at end of the year was 348.57 miles.

Results for the Year

Operating Revenues	\$21,042,515.37
(Increase \$1,492,256.89, or 7.63%)	
Operating Expenses	13,508,215.78
(Decrease \$317,895.33, or 2.30%)	
Net Operating Revenue	\$ 7,534,299.59
(Increase \$1,810,152.22, or 31.62%)	
Taxes and Uncollectible Railway Revenue	1,522,619.62
(Increase \$190,287.51, or 14.28%)	
Railway Operating Income	\$ 6,011,679.97
(Increase \$1,619,864.71, or 36.88%)	
Net Equipment and Joint Facility Rents—Dr.	1,080,914.17
(Increase \$886,134.39, or 454.94%)	
Net Railway Operating Income	\$ 4,930,765.80
(Increase \$733,730.32, or 17.48%)	
Other Income	243,770.19
(Decrease \$3,661.52, or 1.48%)	
Total Gross Income	\$ 5,174,535.99
(Increase \$730,068.80, or 16.43%)	
Rentals and Other Payments	58,782.17
(Decrease \$9,388.19, or 13.77%)	
Income for the year available for interest	\$ 5,115,753.82
(Increase \$739,456.99, or 16.90%)	
Interest (26.67% of amount available)	1,364,360.77
(Decrease \$270,128.85, or 16.53%)	
Income Balance, for the year	\$ 3,751,393.05
Dividends paid during the year:	
One dividend of 2%	\$219,990.00
Three dividends of 2½% each, aggregating ..	824,962.50
	1,044,952.50

Balance, devoted to improvement of physical and other assets

Financial

The changes in funded debt shown by balance sheet of December 31, 1927, as compared with December 31, 1926, consisted of (a) the payment of \$627,088.72 on equipment trusts and (b) the retirement and cancellation, by the Trustee, of \$6,000 face amount First Consolidated Mortgage Four and One-half Per Cent. Gold Bonds, through the Sinking Fund provision of the mortgage.

During the year, the \$6,000,000 face amount of Six-Months Five Per Cent. Secured Gold Notes matured March 1, 1927, of which \$1,000,000 face amount was paid and retired, and the remaining \$5,000,000 face amount was paid by the re-funding issue of \$5,000,000 face amount of Six-Months Four and One-half Per Cent. Secured Gold Notes, due September 1, 1927; and the latter notes, upon maturity September 1, 1927, were paid and retired. The collateral which had been used to secure these notes, consisting of \$7,500,000 face amount Six Per Cent. General Mortgage Bonds, Series A, was released and placed in your Company's treasury as follows:—\$1,250,000 face amount upon the maturity March 1, 1927, of the first named notes, and \$6,250,000 face amount upon the maturity September 1, 1927 of the last named notes.

General Remarks

The work of separating grades at Dennison Avenue, Columbus, required by the City authorities which was reported as well under way in 1926, was completed and placed in service in 1927.

A 200 ton track scale was installed and placed in service at Fostoria, replacing one of 80 tons capacity.

	1927	1926	
Operating Revenues were.	\$21,042,515.37	\$19,550,258.48	Inc. \$1,492,256.89
Net. Opr. Revenues were.	7,534,299.59	5,724,147.37	Inc. 1,810,152.22
Operating Ratio	64.2%	70.7%	Dec. 6.5%
Tons of Revenue Freight carried One Mile.....	2,902,014,167	2,596,271,626	Inc. 305,742,541
Revenue Train Load—Tons	1,712	1,574	Inc. 138
Revenue Tons per Loaded Car	48.2	47.7	Inc. .5

The revenue coal and coke tonnage was 21,215,777 tons, an increase of 13.4%; other revenue freight tonnage was 4,138,881 tons, a decrease of 1.1%. Total revenue tonnage was 25,354,658 tons, an increase of 10.7%. Freight revenue was \$18,203,367.76, an increase of 7.1%. Freight train mileage was 1,694,818 miles, an increase of 2.7%. Revenue ton miles were 2,902,014,167, an increase of 11.8%. Ton mile revenue was 6.27 mills, a decrease of 4.3%. Revenue per freight train mile was \$10.741, an increase of 4.3%. Revenue tonnage per train mile was 1,712 tons, an increase of 8.8%; including Company's freight, the tonnage per train mile was 1,755 tons, an increase of 8.7%. Tonnage per locomotive, including Company's freight, was 1,479 tons, an increase of 7.7%. Revenue tonnage per loaded car was 48.2 tons, an increase of 1.0%. Tons of revenue freight carried one mile per mile of road were 8,325,485, an increase of 11.8%.

There were 359,558 passengers carried, a decrease of 5.8%. The number of passengers carried one mile was 25,308,091, an increase of 4.6%. Passenger revenue was \$797,311.84, an increase of 1.5%. Revenue per passenger per mile was 3.15 cents, a decrease of 3.0%. The number of passengers carried one mile per mile of road was 72,605, an increase of 4.6%. Passenger train mileage was 702,851, an increase of 12.7%. Passenger revenue per train mile was \$1.134, a decrease of 9.9%; including mail and express it was \$1.448, a decrease of 10.6%. Passenger service train revenue per train mile was \$1.492, a decrease of 10.7%. References were made in reports for last four years to the decrease in the number of local passengers carried and in the revenue therefrom due to the establishment of motor bus lines and increased use of private motor cars. In 1927 there was a further decrease of 9.5% in the number of local passengers carried and 1.2% in the revenue therefrom due partly to the same causes. There was an increase of 5.4% in the revenue from through passengers.

During the year, hearings were concluded before the Interstate Commerce Commission and briefs filed respecting the tentative valuations as of valuation date, June 30, 1917, served on your Company and its two carrier subsidiaries (The Wellston and Jackson Belt Railway Company and The Pomeroy Belt Railway Company) on October 29, 1926.

Appreciative acknowledgment is hereby made to officers and employees for their efficient service during the year.

By order of the Board of Directors:

W. J. HARAHAAN,
President.

O. P. VAN SWERINGEN,
Chairman.

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General Balance Sheet, December 31, 1927

Assets	
Investments.	
Investment in Road and Equipment:	
Road	\$39,964,277.67
Equipment	17,741,118.57
	\$57,705,396.24
Sinking Funds	63.05
Deposits in Lieu of Mortgaged Property	
Sold	1,083,047.75
(Includes \$847,902.85—see Contra)	
Investments in Affiliated Companies—Pledged:	
Stocks	108,088.66
Bonds	300,000.00
	408,088.66
Investments in Affiliated Companies—Unpledged:	
Stocks	694.00
Bonds	196,451.80
Notes	1,410,000.00
Advances	112,602.45
	1,719,748.25
Other Investments:	
Bonds	326,000.00
Total Investments	\$61,242,343.95
Current Assets.	
Cash	\$ 778,705.81
Time Drafts and Deposits	100,000.00
Special Deposits	402,512.50
Traffic and Car Service Balances Receivable	613,043.97
Net Balance Receivable from Agents and Conductors	110,813.44
Miscellaneous Accounts Receivable	464,263.04
Material and Supplies	916,946.55
Interest and Dividends Receivable	41,758.74
Other Current Assets	959.16
	3,429,003.21
Deferred Assets.	
Working Fund Advances	\$ 5,397.95
Insurance and Other Funds	107,733.72
	113,131.67
Unadjusted Debits.	
Rents and Insurance Premiums Paid in Advance	\$ 1,986.67
Other Unadjusted Debits	209,679.38
Securities Issued or Assumed—Unpledged:	
Capital Stock—Common	
(see Contra)	\$ 500.00
General Mortgage 6%	
Bonds (see Contra)	12,801,000.00
	12,801,500.00
	13,013,166.05
Total	\$77,797,644.88

Liabilities	
Capital Stock—Common	
(Includes \$500.00—see Contra)	\$11,000,000.00
Funded Debt.	
First Consolidated Mortgage 4½% Bonds	1999 \$15,889,000.00
First Mortgage C. & H. V. R. R. 4% Bonds	1948 1,401,000.00
First Mortgage C. & T. R. R. 4% Bonds	1955 2,441,000.00
Equipment Trust Obligations	6,699,902.85
(Includes \$847,902.85—see Contra)	
Held by or for the Company:	
General Mortgage 6% Bonds (see Contra)	12,801,000.00
Other Debt.	
Non-negotiable Debt to Affiliated Companies:	
Open Accounts	63,399.64
Working Liabilities.	
Traffic and Car Service Balances Payable	\$ 341,846.70
Audited Accounts and Wages Payable	1,136,228.27
Miscellaneous Accounts Payable	51,236.62
Interest Matured Unpaid	403,545.00
Unmatured Interest Accrued	133,123.33
Other Working Liabilities	10,283.88
	2,076,263.80
Deferred Liabilities.	
Other Deferred Liabilities	37,569.08
Unadjusted Credits.	
Tax Liability	\$ 1,052,373.08
Insurance and Casualty Reserves	107,733.72
Accrued Depreciation—Equipment	4,741,097.37
Other Unadjusted Credits	766,208.93
	6,667,413.10
Corporate Surplus.	
Additions to Property through Income and Surplus	\$ 312,106.74
Funded Debt Retired through Income and Surplus	138,756.90
Miscellaneous Fund Reserves	41,091.78
Appropriated Surplus not Specifically Invested	13,405.25
Total Appropriated Surplus	\$ 505,360.67
Profit and Loss—Credit Balance	18,215,735.74
	18,721,096.41
Total	\$77,797,644.88

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Financial News

(Continued from page 832)

with options calling for a renewal of the lease or for acquisition of ownership of the company by purchase of the common stock. Mr. Binkley proposed, if the plan were accepted by the commission to invest some \$700,000 or \$800,000 in the development of strip mines along the line, the traffic from which it is supposed will allow the Chester & Mount Vernon to be operated profitably by the Missouri Pacific as a part of its Illinois division.

MAINE CENTRAL.—Annual Report.—The annual report for 1927 shows net income after interest and other charges of \$551,025, equivalent after the 5 per cent dividends on the preferred stock, to 8.41 per share on the outstanding common stock. Net income in 1926 was \$1,270,397 or 9.28 per share. Selected items from the income statement follow:

MAINE CENTRAL		
	1927	1926
Average mileage operated	1,121.28	1,121.24
RAILWAY OPERATING REVENUES	\$20,217,535	\$20,423,812
Maintenance of way	3,252,533	3,013,982
Maintenance of equipment	3,837,605	3,872,810
Transportation	8,121,176	8,162,015
TOTAL OPERATING EXPENSES	16,073,451	15,843,270
Operating ratio	79.50	77.57
NET REVENUE FROM OPERATIONS	4,144,084	4,580,542
Railway tax accruals	1,373,275	1,227,041
Railway operating income	2,769,588	3,349,048

Equipment rents, net Dr.	1,019,110	835,522
Joint facility rents, net Dr.	287,027	264,343
NET RAILWAY OPERATING INCOME	2,452,653	3,133,026
Non-operating income	501,158	503,293
GROSS INCOME	3,270,746	3,852,341
Rent for leased roads	823,427	814,423
Interest on funded debt	1,236,284	1,246,804
TOTAL DEDUCTIONS FROM GROSS INCOME	2,719,721	2,581,944
NET INCOME	551,025	1,270,397

MISSISSIPPI CENTRAL.—Annual Report.—The annual report for 1927 shows net income after interest and other charges of \$223,167, as compared with net income in 1926 of \$248,916. Selected items from the income statement follow:

MISSISSIPPI CENTRAL		
	1927	1926
RAILWAY OPERATING REVENUES	\$1,653,416	\$1,688,878
TOTAL OPERATING EXPENSES	1,213,983	1,210,876
NET REVENUE FROM OPERATIONS	439,433	478,002
Railway tax accruals	104,825	121,299
Railway operating income	334,427	356,287
GROSS INCOME	397,804	448,390
NET INCOME	223,167	248,916
Sinking fund deductions	115,399	109,509
Balance carried to profit and loss	107,768	139,407

MOBILE & OHIO.—Abandonment.—The Interstate Commerce Commission has issued a certificate authorizing this company

to abandon its branch extending from South Columbus to Columbus in Hickman County, Ky., 1.6 miles.

NEW YORK, CHICAGO & ST. LOUIS.—Stock Authorized.—The Interstate Commerce Commission has authorized this company to issue \$3,378,500 6 per cent cumulative preferred stock, series A, to be sold at not less than 106 to holders of common stock of record March 12 in the ratio of one share of preferred for each nine shares of common, the proceeds are to be used to reimburse the treasury for capital expenditures previously made. In a separate decision the commission also approved the sale at par of \$3,378,500 of common at present held in the treasury to common stockholders at par in the ratio of one share to each nine shares at present held.

NORFOLK & WESTERN.—Annual Report.—The annual report for 1927 shows net income after interest and other charges of \$30,651,295, equivalent after the 4 per cent dividends on the preferred stock, to \$21.23 per share on the outstanding common stock. Net income in 1926 was \$36,804,188, or \$26.13 per share. See excerpts from annual report on adjacent pages:

PENNSYLVANIA.—Acquisition.—This company has applied to the Interstate Commerce Commission for authority to acquire control by purchase of stock of the Columbus & Xenia, which has a line

from Columbus to Xenia, Ohio, 52 miles, operated by the Pennsylvania under lease. The Pennsylvania proposes to purchase the 35,724 shares of outstanding stock at \$115 per share.

SEABOARD AIR LINE.—Acquisition.—This company has applied to the Interstate Commerce Commission for authority to acquire control of the Prince George & Chesterfield, which has applied for authority to build a line from Chester to Hopewell, Va., 14 miles, by acquisition of its stock and by lease. The Prince George company has also applied for authority to issue \$5,000 of capital stock and \$1,000,000 of 25-year first mortgage 6 per cent bonds, to be delivered to the Seaboard.

SOUTHERN.—Annual Report.—The annual report for 1927 shows net income after interest and other charges of \$21,699,908, equivalent after the 5 per cent dividends on the preferred stock, to \$14.40 per share on the outstanding common stock. The net income in 1926 was \$23,596,722, or \$15.87 per share. See excerpts from annual report on adjacent pages.

SOUTHERN PACIFIC.—New Director.—Hugh Neill, vice-president and secretary, has been elected a director to fill the vacancy caused by the death of H. E. Huntington on May 23, 1927.

VICKSBURG BRIDGE & TERMINAL COMPANY.—Bond Offering.—H. M. Byllesby & Co., Inc., have announced an offering of \$5,000,000 first mortgage, 6 per cent sinking fund bonds, maturing March 1, 1958, at a price of 99½ and interest, giving a yield of over 6 per cent. This company will build a combined railroad and highway bridge across the Mississippi River at Vicksburg, Miss., which will replace car and other ferry services across the river at this point. The Yazoo & Mississippi Valley has leased the railroad section of the proposed bridge for a period of 50 years, renewable at the option of the lessee.

Valuation Reports

The Interstate Commerce Commission has issued final valuation reports finding the final value for rate-making purposes of the property owned and used for common-carrier purposes as of the respective valuation dates as follows:

Northwestern Terminal	\$126,500	1919
Millers Creek	172,798	1928

Average Price of Stocks and of Bonds

	Apr. 3	Last week	Last year
Average price of 20 representative railway stocks...	123.10	122.05	110.30
Average price of 20 representative railway bonds...	96.74	96.85	94.82

Dividends Declared

Atchison, Topeka & Santa Fe.—Common, \$2.50, quarterly; payable June 1 to holders of record May 4.

Baltimore & Ohio.—Common, 1½ per cent, quarterly; preferred, 1 per cent, quarterly; both payable June 1 to holders of record April 14.

Delaware, Lackawanna & Western.—\$1.50 quarterly, payable April 20 to holders of record April 7.

Norfolk & Western.—Adjustment preferred, 1 per cent, quarterly, payable May 19 to holders of record April 30.

Philadelphia & Trenton.—2½ per cent, quarterly, payable April 10 to holders of record

Officers

Executive

M. H. Cahill, vice-president in charge of operation of the Seaboard Air Line, with headquarters at Savannah, Ga., has, at his own request, been granted a leave of absence. Departments heretofore reporting to Mr. Cahill will henceforth report to **E. C. Bagwell**, operating assistant to vice-president, with headquarters at Savannah. Mr. Bagwell will report to the president.

C. M. Sheaffer, assistant vice-president in charge of operation of the Pennsylvania, has retired from active service under the pension regulations. A photograph and sketch of Mr. Sheaffer's railway career appeared in the *Railway Age* of February 12, 1927, page 496.

James T. Gillick, who has been elected vice-president in charge of operation of the Chicago, Milwaukee, St. Paul & Pacific, with headquarters at Chicago, has been in the service of the operating department of that railroad for nearly 43 years. He was born on June 1, 1870, at Glencoe, Minn., and entered railway service on the Milwaukee at the age of 15 years. Shortly thereafter he became a telegraph operator and in 1890 he was advanced to train dispatcher. He served in the latter capacity and as chief dis-



James T. Gillick

patcher until 1903 when he was promoted to trainmaster at Perry, Iowa. In 1906 Mr. Gillick was promoted to superintendent, with headquarters at Des Moines, Iowa, later being transferred to Aberdeen, S. D., where he remained until 1913 when he was again advanced to assistant to the general manager with headquarters at Chicago. He was promoted to assistant general manager at Chicago on July 1, 1917, and on November 1 of the same year he became general manager of the lines east of Moberly, S. D., with headquarters as before at Chicago. In November, 1925, Mr.

Gillick was promoted to chief operating officer of the Milwaukee, with headquarters at Chicago.

Robert T. Rossell, who has been elected president of the Bessemer & Lake Erie, was born in Pittsburgh, Pa., on September 28, 1876. In 1892 he was



Robert T. Rossell

employed by the law firm of Knox & Reed; he is still associated with the successors of that firm. In 1901 Mr. Rossell was appointed secretary to the president of the Bessemer & Lake Erie and the Union Railroad Company, and in 1922 he was elected vice-president of the same roads, serving in that capacity until the recent death of James H. Reed, whom he succeeded as president.

Henry E. Pierpont, who has been elected vice-president of the Chicago, Milwaukee, St. Paul & Pacific in charge of traffic, with headquarters at Chicago, has been in the service of that railroad during his entire railroad career, nearly 45 years. He began railway service as a telegraph operator on the Milwaukee in 1883 and until May, 1892, he occupied various positions in the station and au-



Henry E. Pierpont

ditig departments, including that of freight agent at Kansas City, Mo. He was then advanced to division freight and passenger agent at La Crosse, Wis., and four years later was promoted to

assistant general freight agent at Chicago, becoming general freight agent, with headquarters at the same point, on January 1, 1907. On January 15, 1913, Mr. Pierpont was promoted to freight traffic manager and on August 15, 1918, to traffic manager. During 1926 Mr. Pierpont was appointed acting chief traffic officer, his promotion to chief traffic officer of the Milwaukee, with headquarters at Chicago, becoming effective later in the same year.

Financial, Legal and Accounting

J. Carter Fort, commerce attorney of the Illinois Central, with headquarters at Chicago, has been appointed assistant to the general counsel with headquarters at the same point. **J. H. Wright**, attorney at Chicago, has been appointed assistant to the general solicitor with headquarters as before at Chicago. **J. T. Quisenberry**, attorney at Chicago, has been appointed commerce attorney succeeding Mr. Fort. These appointments were made following the retirement under the pension regulations of the company of Judge **George A. Dupuy** who held the position of special attorney, with headquarters at Chicago.

M. F. Stokes, chief clerk to the president of the Belt Railway of Chicago and the Chicago & Western Indiana, with headquarters at Chicago, has in addition been elected assistant secretary. **A. R. Burton**, assistant auditor and assistant secretary, will continue to perform the duties of assistant auditor.

Operating

C. W. Cummings has been appointed superintendent of car service of the Boston & Albany, with headquarters at Springfield, Mass., succeeding **L. A. Anthony**, retired.

L. L. White, superintendent of the Chicago division of the Erie, with headquarters at Chicago, has been transferred to a newly created division, the Marion division, with headquarters at Huntington, Ind. The new Marion division is a consolidation of the former Marion and Chicago divisions. **R. C. Randall** has been appointed assistant superintendent of the Marion division, with headquarters at Chicago.

Peter L. Clarity, superintendent of terminals of the Great Northern at Minneapolis, Minn., for 26 years and since 1923 superintendent of the Minneapolis passenger station, retired from active service under the age limit regulations of that company on March 12. Mr. Clarity was born on March 12, 1858, and entered railway service at the age of 14 years as a section laborer on the St. Paul & Pacific (now the Great Northern) at Howard Lake, Minn. Five years later he had learned telegraphy and was

placed in charge of the station at Albany, Minn. From 1877 to 1897, he was successively agent at Melrose, Minn., clerk in the office of the auditor at St. Paul, Minn., agent and traveling auditor at Moorhead, Minn., and agent at West Superior, Wis. Mr. Clarity was promoted to superintendent of terminals at Minneapolis in January, 1897. When the St. Cloud and Terminal divisions were combined in September, 1926, he was then appointed superintendent of the Minneapolis passenger station.

L. A. Anthony, superintendent of car service of the Boston & Albany, with headquarters at Springfield, Mass., has retired after fifty years of service with that road. Mr. Anthony was born on March 10, 1858, at Scotland, Conn. In 1878 he was appointed record and mileage clerk of the Railway Clearing House Association at Boston, Mass., later serving as assistant chief clerk and then as chief clerk. He remained with the association until August 1, 1890, when he was appointed car service agent of the Boston & Albany. On June 1, 1911, he was appointed superintendent of car service, serving in this capacity until the time of his retirement from service.

J. W. Walker, superintendent of the Valley division of the Atchison, Topeka & Santa Fe, with headquarters at Fresno, Cal., has been promoted to assistant to the general manager, with headquarters at the same point. **C. G. Fluhr**, superintendent of the Arizona division, with headquarters at Needles, Cal., has been transferred to the Valley division, succeeding Mr. Walker. Mr. Fluhr has been replaced as superintendent of the Arizona division by the promotion of **G. W. Simpson** who was assistant superintendent of the Valley division, with headquarters at Fresno.

C. A. Clements, superintendent of the St. Louis Terminal division of the Missouri Pacific, with headquarters at St. Louis, Mo., has been promoted to assistant general manager of the Missouri Pacific Lines in charge of yard operations, with headquarters at the same point. **W. R. Petty**, assistant superintendent at St. Louis, has been promoted to superintendent of the St. Louis Terminal division replacing Mr. Clements. **George W. Booker** has been appointed freight trainmaster of the St. Louis Terminal division, with headquarters at St. Louis.

R. N. Lynch has been appointed assistant trainmaster of the Logan coal sub-division of the Chesapeake & Ohio, with headquarters at Peach Creek, W. Va., succeeding **R. Vawter** who has been transferred, in the same capacity, to the Sewell Valley sub-division, with headquarters at Rainelle, W. Va.

William N. Neff, formerly superintendent on the Denver & Rio Grande Western at Pueblo, Colo., has been appointed general superintendent in charge

of operation and maintenance of way and structures of the entire Northwestern Pacific system, with headquarters at Sausalito, Cal.

A. K. Spencer, general yardmaster on the Denver & Rio Grande Western at Pueblo, Colo., has been appointed terminal trainmaster of the joint Missouri Pacific-Denver & Rio Grande Western freight terminal at Pueblo.

H. D. Earl, general superintendent of the Texas & Pacific, with headquarters at Dallas, Tex., has been appointed general manager, with headquarters at the same point.

Traffic

L. A. Behrle has resigned as assistant general freight agent of the Chicago & Alton, with headquarters at Chicago, to become general traffic manager of the Chicago Gravel Company, with headquarters at the same point.

J. M. Ball, assistant general freight agent of the International-Great Northern, with headquarters at Houston, Tex., has been promoted to assistant traffic manager, with headquarters at the same point. **J. E. Bailey**, assistant general freight agent at Houston, has been promoted to general freight agent, with headquarters in the same city. **W. J. Schill** has been appointed assistant general freight agent, with headquarters at Houston.

S. M. Greene, city ticket agent for the Canadian National at Regina, Sask., has been promoted to general agent in the passenger department at Montreal, Que.

Thomas E. Sands, freight traffic manager of the Minneapolis, St. Paul & Sault Ste. Marie, with headquarters at Minneapolis, Minn., has been promoted to general freight traffic manager, with headquarters at the same point, a newly created position. **E. G. Clark**, general freight agent at Minneapolis, has been promoted to freight traffic manager succeeding Mr. Sands. **J. H. Rees**, assistant general freight agent at Minneapolis, has been advanced to general freight agent to replace Mr. Clark. **R. N. Golden**, general freight agent of the Minneapolis & St. Louis, with headquarters at Minneapolis, has been appointed general freight agent of the Soo Line, with headquarters in the same city. **W. A. Carlsen**, general agent in the freight department at Detroit, Mich., has been transferred to Chicago.

Edward T. Olander has been appointed general agent for the Erie, with headquarters at Peoria, Ill., succeeding **W. P. Kromphardt**, transferred. **Eugene J. Dean** division freight agent at Dayton, O., has been appointed industrial agent with headquarters at Chicago.

Frank Jensen, assistant general passenger agent of the Texas & Pacific,

with headquarters at New Orleans, La., has been promoted to general passenger agent, with headquarters at Dallas, Tex.

J. L. Homer, general eastern passenger agent of the Delaware, Lackawanna & Western, with headquarters at New York, has been appointed assistant general passenger agent, with the same headquarters. **M. H. Murphy**, traveling passenger agent, has been appointed district passenger agent, with headquarters at New York. The titles of general eastern passenger agent and traveling passenger agent have been abolished.

Engineering, Maintenance of Way and Signaling

F. T. Huston, master mechanic of the Renovo division of the Pennsylvania, with headquarters at Erie, Pa., has been transferred to the Panhandle division, with headquarters at Dennison, Ohio.

D. K. Roll, general signal inspector of the Chesapeake & Ohio, with headquarters at Huntington, W. Va., has been appointed supervisor of signal construction, with headquarters at Covington, Ky.

W. A. Kingman has been appointed office engineer of the Eastern lines of the Atchinson, Topeka & Santa Fe, with headquarters at Topeka, Kan., succeeding **H. L. Hunter** who has been assigned to other duties.

Clinton A. Plumly, who has been appointed assistant to the chief engineer of the Maine Central, with headquarters at Portland, Me., was born on February 24, 1886, at Lincoln, Me. He was graduated from the University of Maine in 1909 and entered railway service in July



Clinton A. Plumly

of the same year, serving in the engineering department of the Maine Central until September, 1917. From September, 1917, to June, 1919, Mr. Plumly served in the United States Army, returning to the Maine Central in September, 1919, as valuation engineer, which position he held until his recent appointment as assistant to the chief engineer.

F. E. Morrow, assistant chief engineer of the Belt Railway of Chicago and the Chicago & Western Indiana, has been appointed chief engineer of both railroads, with headquarters as before at Chicago. Mr. Morrow assumes the duties of chief engineer performed previously by **E. H. Lee**, who held the title of president and chief engineer and who was re-elected president on April 3.

Asa H. Morrill, who has been appointed chief engineer of the Maine Central, with headquarters at Portland,



Asa H. Morrill

Me., was born at Concord, N. H., on October 7, 1870. He was graduated from the Massachusetts Institute of Technology in 1892 and entered the service of the New York, New Haven & Hartford in June of the same year, serving consecutively to January 19, 1906, in various positions from clerk to roadmaster in the maintenance of way department. From June 16, 1906, to January 19, 1907, he served as draftsman on the same road, being appointed assistant engineer of construction on the latter date. On February 1, 1913, Mr. Morrill was appointed engineer of construction and valuation engineer of the Maine Central and Portland Terminal Company, serving in this capacity until his recent appointment as chief engineer.

Special

Dr. O. B. Zeinert has been appointed assistant chief surgeon of the Missouri Pacific, with headquarters at the Missouri Pacific Hospital, St. Louis, Mo.

C. H. Worby, superintendent of sleeping, dining and parlor cars and railway restaurants on the Central region of the Canadian National, with headquarters at Montreal, Que., has been transferred to the Western region, with headquarters at Winnipeg, Man., succeeding **James Gorman**, deceased. **Y. Moody**, assistant superintendent of sleeping dining and parlor cars at Toronto, has been appointed superintendent of sleeping dining and parlor cars, succeeding Mr. Worby.

Obituary

Bertrand T. Wheeler, chief engineer of the Maine Central, died on March 20 at his home in Portland, Me. Mr. Wheeler was born on November 25, 1863, at Lempster, N. H. He was graduated from Dartmouth College in 1884 and entered railway service on April 1, 1885,



Bertrand T. Wheeler

as assistant engineer on the Old Colony (New York, New Haven & Hartford). In 1895 and from 1900 to 1902, Mr. Wheeler was superintendent of streets for the City of Boston, returning to the New York, New Haven & Hartford in 1902 as engineer of construction, which position he held until 1912. From 1910 to 1912 he was also engineer of construction of the Boston & Maine, being appointed chief engineer of the Maine Central on November 1, 1912, which position he held up until the time of his death. Mr. Wheeler also served as chief engineer of the Portland Terminal Company.

Charles B. Fletcher, for nine years superintendent on the Illinois Central in Iowa until his retirement in 1911, died at his home at Centralia, Ill., on March 3. Mr. Fletcher had completed 35 years of service with the Illinois Central. He was born at Sparta, Ill., in 1857, and entered railway service in 1876 as an operator on the Illinois Central at the East St. Louis (Ill.) bridge. After serving in the operating department at various points in Illinois and Iowa he was promoted to superintendent of the Cherokee division, with headquarters at Cherokee, Iowa, in December, 1902. In 1908 when the Cherokee and Omaha divisions were combined he was appointed superintendent of the newly established Iowa division, with headquarters at Fort Dodge, Iowa.

Samuel Church Scott, formerly assistant express and mail traffic agent on the Pennsylvania, died on March 28 at Pittsburgh, Pa. Mr. Scott was born on April 4, 1854, at Toledo, O. He entered railway service with the Pennsylvania in 1872 and was at one time assistant vice-president. He later served as assistant express and mail traffic agent, which position he held when he retired.